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Computer Weekly

Thursday, April 2, 1981

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Computer Weekly

Thursday, April 9, 1981 Number 752 25p

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NEWS BRIEF

DP pay up 30%

SALARIES in DP increased by 14-16% on average in the last 12 months, higher than all other management occupations apart from accounting and electrical engineering, according to Reward Regional Surveys in its latest four-monthly survey, which shows programmers with an average increase of 25%, and senior systems analysts and senior programmers with 20%.

LSI franchises

UK MICROCOMPUTER company LSI Computers of Woking is planning to set up a series of 20 to 30 franchises throughout the country to sell its Systems M-One and M-Two small business computers. The franchisees will be encouraged to take responsibility for marketing and customer training, although LSI will continue to operate its own installation, after sales service and software development.

Hotel bookings

ONE hundred and fifty independent British hotels will be linked by satellite to the Best Western Hotel reservation system centred in Phoenix, Arizona, on April 7. A further 600 hotels located throughout Europe are expected to link into the system this year.

ICL-EMI deal

A MULTI-MILLION pound OEM agreement to supply magnetic tape decks for ICL's ME29 range of computers has been signed with SE Labs (EMI). It is expected that several thousand of the company's EMI 8800 micro-controlled tape drives will be ordered. ICL will market the unit as the Type 3551 magnetic tape system.

CSA plans November 'raid' to capture Japanese trade

by Kevin Cahill

IN response to indications from Japan that there is a market for UK computing skills and experience, the Computing Services Association is organising a software selling mission to the country in November. The delegation is being formed in association with the London Chamber of Commerce and Industry.

The mission is also backed by a Department of Industry subsidy of £700 for each exhibitor prepared to travel, and has already attracted enquiries from over 30 companies and firm commitments from ten more.

The events in Japan will be held at the biggest British trade display

centre in the world, the British Export Marketing Centre in Tokyo, and will take place from November 9-22, 1981.

Talks about the exact shape of the event are still being held with the first respondents to the CSA's circular and a first meeting of the software suppliers involved on the trip will take place on April 9 in London.

November's event was set up after representatives of the Japanese computer industry visited the CSA in London two months ago.

The Japanese outlined the difficulties they are experiencing in devising suitable software for the machines they are exporting. Most Japanese software companies are

very small and there is little by way of a developed software industry, as exists in the UK.

An additional attraction of the exhibition is timing, in that Japan should by then have signed the current GATT agreement. This will force the Japanese to open to international tender their public sector computer requirement, a market estimated to be worth over £7 billion in the next five years.

Much of this will be for large software systems. Despite the inherent problem of the Japanese language and the subsystems already generated by the Japanese to deal with it, the need for large telecoms and operating systems will remain.

The mission is a dual event, an exhibition organised by the London Chamber of Commerce, and a seminar-type event currently organised by Douglas Moor of Peat Marwick Mitchell on behalf of the CSA.

Basic cost of having a stand at the exhibition is £720, which includes free shipping of equipment from the UK.

To have a stand and give a 3,500 word seminar paper will cost £940, but the seminar facilities alone will cost £520.

The London Chamber of Commerce has arranged two different accommodation packages for around £1,000, and a flight only for £660.

Marking time on viewdata

by Donald Keenett

NO formal agreement was reached at last week's discussion in Darnley on European viewdata standards by the specialist group of CEPT, the European PT's association, because the West German negotiators wanted to refer the proposals to their industry.

It is now hoped that a set of standards will emerge from the CEPT plenary in Stockholm in June. Prestel research chief Kiki Clarke said it would not be disastrous for the UK if the final decision slipped back to 1982, because Prestel was pushing ahead with alternative display techniques had only marginal advantages over Prestel.

Enhanced Prestel versions would be tied to the spread of the Integrated Services Digital Network based on System X, which would provide 64Kbps data paths across the network from terminal to Prestel centre.

Prestel would then support encryption for secure transmissions and Picture Prestel for the display of colour photographs, as well as serial and parallel character-attribute coding methods that were being worked out now.

The consensus was that delay in agreeing standards would be harmful to Europe as a whole. Current discussions were designed to produce recommendations for methods of making terminals compatible with all European viewdata services without restricting terminal design unnecessarily.

This would enable display coding within the terminal to be implemented in a variety of ways.

Proposed tax changes could kill off small businesses

Govt hits at contractors

by Kevin Cahill and
Ced Dillaway

PUBLICATION of the government's Finance Bill last Friday has revealed a threat to the existence of the £25 million per year contract employment market.

Under section 34 of the Bill, contract employment agencies are to be required to withhold 30 per cent of their payments to contract workers who operate as sole traders or companies.

The money will be off to the Inland Revenue and be against contractors' tax bills at the end of the year. This will put them under severe cash strain, since many will not be effectively "lending" the Inland Revenue money until the end of the tax year.

The contract market is largely made up of individual programmers and analysts who form themselves into limited private companies or act as sole traders. This frees the contract agencies from paying and accounting for PAYE and National Insurance contributions. The contractors' invoices from their companies which the agencies pay in a single transaction.

While acting as a limited company, the individual programmer has liabilities for his own PAYE, but in some cases contractors have not made complete payments and the Inland Revenue has lost money.

It is these defaulters that section 34 of the Bill is designed to catch. But the effect will also be to hit the genuine small company, including small software houses formed by several contractors acting together.

Graham Knight, chairman of the Association of Independent Computer Specialists, said that this was another attempt by the government to suppress the formation of small computer companies. "Any individual building himself up a computer business obtains much of his work through agencies."

"Their expansion would be suppressed while they made a forced loan to the government of 30 per cent of their fee income for between 12 and 13 months while their tax affairs were settled," Knight said that the AITS would be making another attempt to get the government to see small business sense by campaigning at the House of Commons.

The way the act would work would be to have the 30 per cent deducted by the agencies chargeable against the corporation tax of the contractor's company. However, most small companies operated by contractors are not liable for corporation tax, and the eventual outcome of the legislation will be to have many more applications for refunds on the desks of the Inland Revenue.

One senior manager at a major agency said that this section of the Bill contradicted earlier sections of the same Bill in which the Government was attempting to make it easier to start small businesses. Many people started their software houses out of the cash flow from contract work, he added.

If enacted in its present form the Act would set up three new administrative functions, one in the agencies which had to collect and account for the tax, two in the small company which would now have the task of double accounting for corporation tax, and a third and further set of tasks at the Inland Revenue.

'IBM in micro market by July'

by David Graver

IBM's entry into the personal computer market will be in July this year, according to Jack Trammel, vice-chairman of the company.

Speaking at a Hanover Fair conference last week, Trammel allowed his forecast by explaining his lack of concern at the prospect of market competition from IBM.

He said the company are now delivering 100,000 units worldwide. IBM is the top seller of computers in the UK and has made only one sale in the US.

IBM, the largest retail computer company in the UK, could be an outlier in the micro market, according to Trammel, consultant for the company's Gartner Group. "There is a very real possibility that a contract would be a major IBM policy."

Trammel would also point out that IBM's micro market, which has been a disaster for retail stores.

In both the US and the UK, delivery will begin in the fourth quarter of this year, Crotty says.

An arrangement with Sears would tend to confirm earlier reports that the product will be aimed at the home systems market. Crotty believes the system will be based on an Intel 8080 series chip with a 24-line CRT with graphics, 64K memory, CPM operating system, and a cost of \$1,500 to \$5,000.

In another twist, a theory that the new IBM model will be an updated version of the 5100 series is being advanced by Robert Ferris, President of Technology Analysis Group in Connecticut. He discounts the possibility of IBM introducing a low cost personal computer. "It would be extremely hazardous, the profit margin would be too small, and the market is not ready."

However, he too expects distribution through Sears, as well as J.C. Penney and other stores.

Both IBM and Sears have refused to comment.

IBM results in UK. Back page.



D'Agapeyeff: walked out when his plan was turned down.

D'Agapeyeff bows out

ALEX d'Agapeyeff, founder and one-time head of CAP, is leaving the newly-formed Microproducts Software Ltd even before the legal complexities of the 'Microproducts' split are unravelled. CAP has opted for a cautious plan involving only 35 employees at Microproducts. D'Agapeyeff envisaged wider plans to make MicroCap a de facto world standard, and CAP's decision led to his departure, followed by those of other top Microproducts staff.



MARGARET THATCHER: stimulating the microcomputer industry through public purchasing.

School micros to boost Acorn

by Brandon Gamewell

THE £4 million computer-education support programme, detailed earlier this week by Prime Minister Margaret Thatcher and Information Technology Minister Kenneth Baker will bring substantial benefits to two British companies, Acorn Computers and Research Machines.

The programme aims to ensure that every secondary school in Britain is equipped with a microcomputer.

Any secondary school which has no microcomputer will be eligible from June 1, for a 50 per cent government grant towards the cost of either the 3802 system from Research Machines costing £1,680 or the BBC microcomputer from Acorn, which retails at £260 plus VAT with a monitor and cassette player.

The Schools Inspectorate estimates that about half of the 5,000 or so secondary schools in Britain have microcomputers, often bought largely from funds raised by Parent-Teacher Associations or local industry.

Government funding for the scheme will come through the Department of Industry, and supplements the Department of Education's £10 million £9 million of microelectronics education programme, which made no provision for supplying schools with computers.

Monday's announcement was accompanied by a strategy docu-

NEWS BRIEF

Buyers close in on FARS

THE APL software house which crashed at the end of March, FARS Computer Services, is still up for grabs. "It's all on the go, but there is nothing definite" the receiver said. "One company has dropped out of the running, but there are a couple of others who are interested and we are still getting inquiries." FARS managing director David Spencer earlier this week said that an announcement was imminent.

BACS upgrade

BANKERS' Automated Clearing Services of Edgware, Middlesex, has ordered an ICL 2966, the machine that can run jobs under DME and VME simultaneously. According to ICL, the 2966 is worth £1 million and will replace two 1904S machines at the Edgware centre, which is also equipped with two 2960s. See Teknos at BACS, Page 4.

Lindop brush-off

THE LINDOP report on data security last week got the final brush-off from the Home Office. In a two-page paper, Cmd 8214, the Home Office remarked: "Governments do not commit themselves to implementing any proposals they may make, still less can they commit their successors." The Lindop committee was set up by the last Labour government.

Information year

CIVIL servants at the Department of Industry last week put forward a plan to designate 1982 Information Technology Year and Kenneth Baker, the Minister who was made responsible for information technology in January, said that both he and the Prime Minister like the idea.

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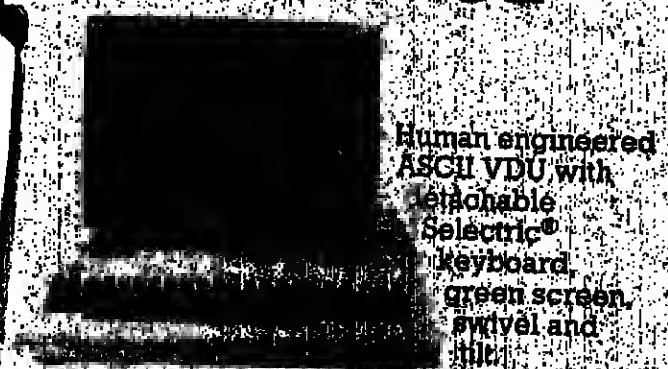
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Judge restricts pickets

by Chris Youett

IT was thought to be the first case under part of the 1980 Employment Act designed to halt secondary or flying picketing, the National Graphical Association was restrained from picketing a Midlands computer supplies firm.

The injunction was granted in chambers by Mr Justice Forbes at

Birmingham High Court last week after an application from Wilkes (PCA) Data Supplies of West Bromwich.

A dispute between the union and a sister company, Wilkes Business Forms at Blinton, arose last month over redundancies and finally the dismissal of an NGA member led to a strike.

NCR office systems move

US computer and data supplier NCR has moved the bulk of its office systems division to the future market.

An office systems division has been set up with company vice-president Robert Jones at its head, and a corporate strategy is being developed, although no details of

products are yet to be had. According to chairman William Anderson, "The market for advanced office systems offers great potential for a company with NCR's technical, marketing, and service capabilities," and the strategy is aimed at capitalising on this.

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Troubled OPM boss in hospital

IN an unexpected turn of events at US computer leasing company OPM, former vice president Myron Goodman has entered a mental hospital in New York State.

The New York-based company, which also has offices in London, filed for Chapter 11 bankruptcy on March 11. It is the object of several civil suits seeking to recover loans made to OPM against certain computer leases. The total amount involved is believed to be greater than \$100 million.

OPM's owners, Mordecai Weissman and Myron Goodman, have each declared personal bankruptcy. They are the objects of lawsuits similar to those against their company. The company is now being run by James Hassett, a trustee appointed by the federal court.

OPM was primarily a lessor of IBM mainframes and peripherals. The company's leases were unusual in that they operated under an "indemnity" arrangement, whereby OPM would lease its computers back from users if they were no longer wanted.

Losses occurred on many of these leases because the computers leased back could not bring in much revenue when OPM placed them in the field again. OPM had no insurance to cover these losses.

The suits lodged against the company centre on leases involving one OPM customer, Rockwell International, believed to be the company's largest client. Rockwell's leases were the responsibility of Myron Goodman.



HEINZ NIXDORF: "We have achieved a 25 per cent sales increase during the first quarter of 1981."

Nixdorf shuns bubbles for home-made discs

BY the end of 1981 Nixdorf will be manufacturing all its own discs, which it sees as being the main memory device through the end of the century.

Bubble memory is suitable only for special applications, says the company, which does not see bubble devices having any significant share of the main peripheral memory market.

The LK3000 personal computer system will be discontinued immediately except for special customers.

Nixdorf has indicated that the company intends to create products for an integrated "office of the future". It has VLSI technology and has set up a substantial R&D operation in California.

Nixdorf says that the core of the future office will be the storing and filing system, surrounded by word processing, graphic input and output and finally input by voice processing devices.

The company will adopt the Ethernet network standard and use the X25 package switching system for data transmission.

Worldwide, Nixdorf has increased staff in almost every country.

Spain will receive £6 million in manufacturing investment while the number of personnel in America has risen to 2,000, where the company has experienced a 40% sales increase.

Nixdorf has 450 staff in Japan while in the Irish Republic, now a major manufacturing source for the company, the number of people employed has risen to 750.

In terms of specific products, Nixdorf's big drive seems to be in banking systems, led by the 8864 banking terminal. According to the company, Nixdorf now has banking terminals in either the first or second-ranking bank in every European country except in the UK. Banking devices and terminals now account for 30% of all Nixdorf's revenues.

Nixdorf now considers itself the biggest European software house with half company revenue coming from software and servicing sources. So far, the company has

delivered over 10,000 computer units, half in the German market.

Nixdorf will seek a German Stock Exchange quotation in 1984, has increased turnover by 10 per cent last year, took on 2,000 more employees worldwide and will hire a further 1,000 people next year.

This breakneck expansion of the company a 50 per cent increase in the consolidated profit and loss account, from a profit of 11 million Dm (£17 million) in 1979 to 22 million Dm (£34,000,000) in 1980.

The impact on the balance sheet profit and loss was marginal with a modest £200,000 increase between 21 million Dm (£3,200,000) in 1979 to 22 million Dm (£3,400,000) in 1980.

This apparent profit slide was discounted by Heinz Nixdorf when he presented the figures last week. He said that the company had deliberately taken a 60 million Dm (£12 million) provision on the rental and leasing side of its business, to avoid a tax charge of the same amount.



Eric Bird, manager of the Microsystems Centre: counting on the needs of small business.

Advice for first time micro users

By Brandon Gamestac

INDEPENDENT advice for first time business users of microcomputers, or those contemplating a first purchase, is available through a new division of the National Computing Centre.

The Microsystems Centre, formally launched in January, this week opened its first "micro workshop" in London. Further workshops are planned for other parts of the country and the next is due to open in Manchester.

At the workshop a dozen microcomputers have been loaned by different companies to form a "one" exhibition in which anyone interested is free to try out a selection of hardware and software. It is hoped that double this number of micros will eventually be on display, each changing every couple of months. Additional services available at the workshop include consultancy, training, information and a bookshop.

Meanwhile, Microdata is pleased with the settlement of the product case, which involved Richard Pick's sale to Ultimate of the operating system which Pick and Associates had written and sold in Microdata for the Reality system in 1975.

Microdata's sole ownership of the Reality OS has been confirmed. The \$90 million for which Microdata originally sued Pick for breach of trade secrets is not to be paid, and Pick is to be allowed full rights on an unrestricted but non-exclusive basis to DM312 ACCESS.

Eric Bird, manager of the Microsystems Centre, told Computer Weekly that the new organisation would make itself known to all forms of business by means of the trade press, and through trade associations and other representatives.

Through a computerised database, visitors to the workshop will be able to search for any software developed for their particular business. A large software library will be built up, so that any visitor interested in a particular software package can try it out at the workshop. Packages are already available for the retail, motor and pharmaceutical trades.

Finance for the Centre will be drawn mainly from consultancy and course fees. The first courses will provide an introduction to microcomputers for managerial, clerical and secretarial staff.

Consultants, on hand at the workshop, will provide their services at £20 per half-hour.

BOC offers Superbrain as intelligent terminal

By Keith Jones

IN line with the growing trend towards using microcomputers as intelligent terminals, BOC Data is offering its Superbrain for use in the Interdata Superbrain for use in time sharing, local data capture and word processing.

From its price/performance attractions, BOC selected the Superbrain because it runs the intelligent GP/M operating system, thus providing BOC with the possibility of changing to other suppliers.

BOC is not marketing the Superbrain under its own name. The DDS 1000, a bottom end addition to the existing DDS system and the Status text retrieval service. Word processing can be handled locally on the DDS 1000.

BOC's plans for the DDS 1000 include the addition of an emulation facility for the IBM 3270 binary synchronous terminal.

STIMULATING further growth in the European information industry and expanding the service capability of Euronet are the two main aims of the EBC's recent Action Plan in the field of technical and technical information and documentation (ETID).

The plan stresses the need for a

supplied with the more powerful DDS machines, which are based on Datapoint computers ranging from the 1500 to the 6600.

Features added to the Superbrain to enable it to communicate with BOC Data's IBM systems software at the bureau centre include "intelligent teletype" software and emulation of the IBM 3780 remote batch terminal.

In teletype mode the Superbrain/DDS 1000 could be used to access BOC services like the Datapoint financial planning system and the Status text retrieval service. Word processing can be handled locally on the DDS 1000.

BOC's plans for the DDS 1000 include the addition of an emulation facility for the IBM 3270 binary synchronous terminal.

EBC to expand Euronet

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The plan stresses the need for a

Norsk launches first European 32-bit mini

by Kevin Cabill

THE first European 32-bit minicomputer, made by Norsk Data, was on show last week at the Hannover Fair. The machine, called the Norsk 500 and announced in May 1979, is claimed to be 40% faster overall than any existing 32-bit machine.

Fifty orders have already been received. One system has been delivered to Reading University and two to CERN in Geneva in the past few weeks.

The basic system consists of a pair of computers, the 16-bit Nord 100 acting as preprocessor to the full 32-bit Nord 500. The two operate under the common Nord operating system Shinar, which gives full compatibility with the whole Nord range.

The two systems share the main memory, which can be extended to a massive 32 megabytes.

Norsk, which has established a major position in the European scientific and research market and recently won the £12 million American F16 fighter bomber flight simulator order, has been supplying 32-bit type systems since 1972, but the N500 is the

first production model to be offered by Norsk.

The technical description of the system includes a basic 200-nanosecond instruction cycle in the N500 with a special arithmetic unit which adds and subtracts at 400 nanoseconds and multiplies in 500 nanoseconds and divides in 2,900 nanoseconds.

The logical address space of the N500 is given as 4 gigabytes for program instructions and 4 gigabytes for data. The system employs a 32K to 128K cache memory, split into two identical areas, one for data and one for programs, so that both can be fetched in parallel.

For communications the system conforms to the 1977 version of CCITT X25. There is an X21 option which allows the system to communicate with circuit switched, as opposed to packet switched, networks.

The language options offered with the systems include ANSI-77 Fortran, Cobol, Basic, Pascal, RPG, Simula, Algol and Coral 66.

The basis system comes with a £75,000 to £80,000 price tag though the average value of configurations already ordered is understood to be in the region of £200,000.

Along with the N500 launch, Norsk also announced a new version of the N100 called the N100CE, meaning commercial extended. This marks Norsk's continuing effort to broaden its customer base away from the current predominance of the scientific and to establish a non-Norwegian business base.

Commentators at Hannover said that if the company keeps up its current order intake for the remainder of the year and can keep to the two-month delivery promise on the N100, turnover could double from last year's £25 million, to £50 million.

Full Norsk report on Page 6.

Pascal service

AN IBM Pascal service has been started by 21st Computer Systems of Twickenham. The company has acquired sole rights from the Australian Atomic Energy Commission to distribute Pascal 8000 throughout the UK and Western Europe.

Bridging the floppy to hard disc gap

A FLOPPY disc with a capacity of five megabytes has been presented by Witha Computer Supplies as a challenge to drive manufacturers to fill the gap between existing floppy and hard disc drives. The disc is made by Californian media company Verbatim. The five megabyte floppy discs are a development of the discs made for use on the three megabyte drive Burroughs uses in its dual-drive MD122. Both Verbatim and Witha, one of its main UK distributors, believe that this is the way things are going.

Naturally, Verbatim has made a prototype five-megabyte drive as its Sunnyvale headquarters to prove the capabilities of its discs, and is willing to supply information on high-capacity recording techniques to drive manufacturers.

The drive uses eight-inch discs with the normal six slots for sector marking, but the tracks are laid 150 to the inch instead of the usual 48 to the inch across the disc, and data is recorded at 10,000 bits per inch on the inner track.

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ICL plug-compatible scores with major front-end deal

PLUG-COMPATIBLE ICL computer Teknos Systems has secured a highly prestigious Clearing Services. BACS is the seventh ICL user to install Teknos 1603 front end processors as an alternative to ICL 7904 units.

Jointly owned by the UK clearing banks, BACS continues to be a highly satisfied user of ICL mainframe equipment but went to Teknos for kit to front end its twin 2960s because Teknos offered a considerably lower price and, even more important, much earlier delivery.

BACS operations are based primarily on batch processing. Put very simply, BACS takes transactions such as salary payments, direct debits and standing orders from magnetic tapes mailed or hand delivered to its Edgware computer centre by about 8,000 organisations all over the UK and sorts them to create tapes for each of the clearing banks.

But one application essential to the security of the whole BACS operation, logging magnetic tapes as they arrive, operates interactively and created problems last year when BACS wanted to transfer it from its original hosts - ageing dual 904S machines - to the two 2960s installed at Edgware about three years ago.

Until a few months ago, all the BACS systems on the 2960s ran in a VMB environment under the software emulator, BMEEP. But last year BACS decided to change to 1900 DME in order to improve overall performance - memory usage and speed.

This change also enables the logging system to be moved over to

the 2960s because, unlike BMEEP, microcoded DME emulates the actual 24-bit word length of the 1900 Series upon which the logging communications software depends.

Unfortunately, the 2900 Series Communications Network Processors that BACS bought with the 2960s were unsuitable for use as FEPs after the conversion to DME because of the 24-bit word length.

BACS considered the ICL 7904 FEP, essentially a 1900 Series product, but ICL's lead times for the 7904 were too long to meet the BACS December 1980 schedule for a cut over to DME on the 2960s.

In March last year the organisation contacted Teknos which was able to guarantee earlier delivery of two 1603s and at a price much lower than the mainframe supplier's quote.

ICL declined to comment on its offer of price or delivery.

The logging system was transferred to the 2960s early this year and the 1904S machines, front ended by two ageing ICL 7930 "scanner only" units, are now confined to the interactive processing side to handling program development work under ICL's Maximop system.

BACS accepts about 800 tapes a day at its reception desks at Edgware and in the City of London. There are four desks at each of the two locations, every one equipped with an ICL 7181 display terminal and an ICL 7505 Teletypewriter linked online to the 2960s via the

Teknos 1603 FEPs.

The 7181s are used in enter information such as the date, the number of time reels in each delivery, the method of delivery and the method of return while the 7505s print receipts for handing over or posting in the relevant organisations.

Many of the reels contain only a few feet or even just a few inches of recorded data, so their contents are consolidated online into a far smaller number of reels prior to processing on the ICL mainframes.

Monthly salary payments alone provide BACS with five million items a month for processing and weekly payments are now seen as a major growth area because of the increased use of bank accounts among weekly-paid employees.

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About 400,000 are handled a week.

The increase in the volume of weekly payments will increase the importance of rapid turnover and to meet this requirement effectively BACS is planning to launch a communications network next year allowing data to be transmitted to Edgware from over the country rather than being physically transported.

The service will be based on powerful minicomputer equipment operating offline and generating magnetic tapes that will "look" to the ICL mainframes like those handled at the moment.

In the longer term, BACS believes that the communications system could go online, although not necessarily interactively.

figure was designed to provide maximum reliability in "fall-back" in the event of equipment failure.

The 1603 is based on the M16E minicomputer hardware. Future enhancements under development include the 1603, a multi-function communications processor system providing connection to both private and public networks incorporating X25 and other non-ICL protocols. Teknos also plans to enhance the system to run in VME/B environment.

The communications room separate from the main computer hall at Bankers' Automated Clearing Services at Edgware. Teknos 1603 front-end processors. Seen here with BACS technical officer Ray Duggan, they link twin ICL 2960 mainframes to ICL 7181 interactive display terminals in a 1900 DME environment.



Distributed DP growth

by David Greaves

DISTRIBUTED data processing is expanding more quickly in Europe than anywhere else in the world, including the US, according to Gene Lockhart, European director of computer management consultancy Nolan, Norton.

Because of complex organisational and product structures, as well as national approaches to systems development, technology, and distributed processing in Europe is high. Controlling the growth of information systems is management's greatest challenge, Lockhart added, while speaking at his company's one-day lecture programme on distributed data processing.

Conference reports distributed database, see Software Data, page 5.

Schools micro boom for Commodore

STANDARDISATION by Essex

Council on two tiers for its schools and further education colleges has brought over £113,000 of business to Commodore over the past financial year, according to the council's buyer, Richard Palmer. He says the total spent by Essex in the year just ended was £175,000 and expects this to be increased in the current year.

Palmer, senior buyer for office equipment (which includes schools and further education colleges), says that 125 machines were installed last year to give some 50% of secondary schools and all further education colleges a micro each. Prior to 1980 only about 30 machines were installed.

Essex has standardised on Commodore's Commodore Pet and Research Machines 3802, and provided a central fund for free maintenance at the Chelmer Institute in Chelmsford.

If they get for something else, they have to maintain it themselves, says Palmer. "Once you get a Commodore machine bought to try, but that's all right. We have a very tight policy."

IBM watchers met in London to discuss the impact of IBM's latest system. Keith Jones reports

Why long-awaited H-series 'was a big disappointment'

THE announcement by IBM of the H-series late last year had been expected beforehand by industry analysts to solve all existing system problems at a stroke. It turned out to be a big disappointment.

This was the message put over last week by John McIntosh, market planning director at Storage Technology, at The User's Guide to the Impact of the H-series, a conference in London organised by OnLine.

McIntosh, whose own company is involved with the development of a line of big IBM-compatible machines, said that what the industry had expected IBM to announce was a family of machines ranging in power from three to 20 mips, with up to 64 megabytes of main memory, up to 64 channels, air cooling, new component technology, an onboard paging device, an onboard data management system, a new relational database

manager and major software changes.

The announcement was of one 10.2 mips water-cooled machine, the 3081, with a maximum of 32 megabytes and 24 channels supported by existing software, MVS/SP and VM/SP. The only new feature on the software side, Release 3 of MVS/SP, will support the multiprocessor architecture.

But McIntosh did not expect any forthcoming H-series machines to provide more than four processors. The expected 3091 would be such a "quadruple" machine offering up to 18 mips and 64 megabytes, while two machines below the 3081, the 3061 and 3051, would be uniprocessors providing no more than six and four mips respectively.

But McIntosh was impressed by the improvement in the overall data rate offered by the 3081 compared with the existing top end

IBM machine, the 3033. According to McIntosh, who worked with IBM up to 1978, the maximum data rate for the 3033 was 24 megabytes per second, although 16 megabytes was more likely in practice, while the 3081 was up on this at 72 megabytes per second.

McIntosh thought that the biggest improvement offered by H-series would come from a change in channel architecture. He said that the channel structure on IBM machines had not changed since the days of the 1401 but that there would now be a move to "floating" channels where I/O operations could use any available channel.

As an employee of a major manufacturer of big disc subsystems, McIntosh was no doubt pleased by figures which predicted that the US overall installed capacity of disc storage would increase from just over 42 terabytes (a terabyte being one

million million) in 1980 to more than 197 terabytes in 1985.

Another speaker, independent consultant Fred Lamond, asserted that the only future for machines as big as the H-series models would be in handling main tasks with eight megabytes of main memory each were far more efficient at executing multiple programs than one 32-megabyte 3081.

Lamond saw the H-series machines being used as large-scale "corporate" database machines linked to a network of regional systems, and via them to local machines. The "corporate" machine would run under MVS using the Hierarchical Storage Manager and some kind of mass storage system.

Lamond underlined the general dissatisfaction with the existing IBM 3850 MSS.



McIntosh... Biggest improvement offered by H-series will come from a change in channel architecture.

NEWS BRIEF

Debug tool 'fills a gap'

THE industrial division of Computer Automation has produced a new debug tool called Software Scope. It is said to fill the gap between the generation of test programs and the integration of the programs on the tester hardware.

Enhanced Level 6

A NEW version of the Level 6 transaction processor, TPS 6 has been introduced by Honeywell. Extra features include support of Cobol 74 for writing application programs, an interactive screen formatter and a two-way transaction processing capability.

Extended

A PASCAL package for the 6809 is now available for the FLEX and MDOS/XDOS operating systems from OmegaSoft, a US company based in Ohio, and its UK distributor, SoftSell of Guildford. Standards have been extended to include hex data values, strings and string handling and real world input/output.

Package list

PACKAGE vendors are being invited to send details of application packages for microcomputers to the Microsystems Division of the NCC which is compiling a list for prospective purchasers at the London Micro Centre. Details, including information on any constraints or limitations, should be sent to Derek Nicholls, Microsystems Centre, 11 Fetter Lane, London EC4A 1PU.

CBASIC on Onyx

THE CBASIC compiler from Compiler Systems in La Mantia, California is now running on the Onyx 8002 under the Unix-like Onyx operating system.

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ATLANTIC IS PLEASED TO ANNOUNCE ITS COMBINED TRADING RESULTS FOR 1980

	1980	1979
Combined Trading Results:	1.1.80 - 31.12.80	
TURNOVER	£16,280,000	£16,955,000
NETT PROFITS	£ 1,037,000	£ 1,164,000
NETT ASSETS	£ 3,813,000	£ 3,593,000

- 1980 year of consolidation and further expansion in Europe - substantial lease orders taken from the Dutch Government - further expansion of the UK Computer Leasing Company's large installations at British Aerospace, UKAEA, and Lloyd's - many 400 systems delivered to 370 users in UK - IBM feature and ancillary deliveries on 3400 systems still delayed in many installations - many users concluded 2000 series upgrades from 370 systems to 4300 systems - profits satisfactory despite high interest rates - significant trend in the UK to cross-border acquisition of 4000 systems - increased costs - number of lease orders signed 28% up on 1979 although lower IBM prices and a reduction in lease order values resulted in turnover, slightly unchanged at £16.5m - conservative accounting policies continued with a provision of over £600,000 in respect of future upgrade (and the early repayment of a term loan of £253,000) from the Orion Bank - prospects for 1981 excellent - profits improvement anticipated with general fall in interest rates - further growth in Holland and Scandinavia envisaged.

Extract from the report of the Chief Executive and Managing Director

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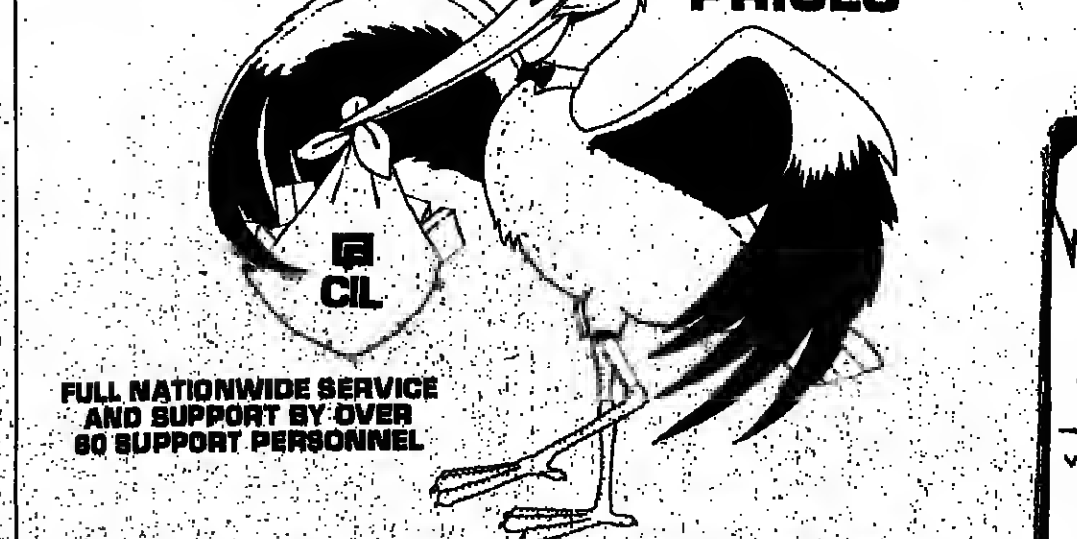
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'International' fair has very local character

by Kevin Cahill

THE biggest single section of the Hannover Fair is now electronics and computing, and over 700 different sellers and manufacturers were there last week to display their wares.

But the international character of the exhibition seemed questionable. There were notable omissions in the shape of Japanese companies like Nippon Electric and Mitsubishi, many of the American companies were represented only by their local and very German subsidiaries.

In many respects the fair looks very like a German fair for Germans, with outsiders free to come in if they want to.

The other noticeable characteristic of Hannover is that it is a "finished product" event. There were very few significant product or development announcements.

Apart from the Norak Data 500 machine, the most interesting developments were from the Japanese and some of the East European stands.

Iskra, the Yugoslavian manufacturing conglomerate, was showing a much improved Z80-based microcomputer called the Iskradato 80. The machine won a design award at the pre-fair preview, and comes with 32K or 64K main memory.

The machine is designed as a network controller with up to 16 workstations and runs a CPM look-alike operating system called ID80.

The Yugoslavians see Germany as their main European market, though there is an agent in the UK.

The problem with the multiple-

ity of dazzling Japanese stands was to find the parent and the computer. Because of the intricate marketing arrangements the Japanese have within their own country and with various European companies the two principal mainframes, or rather the two major product streams which are actually the alternative machines from the same range, are sold by two European companies.

The mainframe line from which Hitachi and Fujitsu sell the alternative models appears in Europe as the Siemens 7.880 (Fujitsu M-200) and the Olivetti OH5500 (Hitachi M-180). No Japanese stand showed a mainframe.

Mitsubishi, whose Melcom range has a considerable market share in Japan, was not at Hannover. NEC (Nippon Electric), the only Japanese company running its own complete marketing operation in Europe, also avoided an appearance.



Iskradato 80: Yugoslavian system wins show award.

Of those who were there Sord, the independent small business machine manufacturer, showed its 243 micro-mini for the first time in Europe.

Matsushita, currently rumoured to be arranging a component deal with IBM, launched its full personal and small business range in Europe.

Under the Panasonic brand name, the My Brain machine has appeared as the JD-850M. Based on an 8085A microprocessor with 56K RAM, the machine has two floppy disc units as standard, each with a capacity of 1001 K-bytes. No price was quoted for the My Brain but the somewhat similar JD-800M (8085A + 56K RAM) was quoted at about £3,000.

Toshiba launched two small computers, a word processor dedicated mini priced at £5,000, and a small 64K machine called the T200 which is priced at just over £2,000 including printer.



Wordplex 80: designed to replace existing screen models.

Wordplex 80 stakes low-price claim

by Rory Johnston

LOW-COST word processing was the theme of the relatively few new products for the office launched at Hannover.

A new terminal from Wordplex, intended to replace all the company's existing screen models, was the most surprising sight of the show, especially its low price bringing it into competition with the recently announced cheap machines from giants IBM and Wang.

UK pricing for the Wordplex 80, as the new range is called, has yet to be announced, but it is selling in Germany typically for £4,500 - which puts it in the Displaywriter/Wangwriter league, although features have not been reduced as in the IBM and Wang machines.

That apart, there was a large range of electronic typewriters, some from newcomers such as Remington Rand, Japanese maker Brother, and small Texas firm Contronix.

The most ominous news for Western suppliers, however, was the first sight of screen word processors from Japan.

A prototype from Sharp and an

actual production model from Toshiba, both with German price tags of less than £4,500, were on display and Sharp was also showing a desk-top prototype Inkjet printer.

The other Japanese arrival of importance for the office systems market was a table-top laser printer from Canon - described, but not demonstrated last week which uses a semiconductor to produce the laser, reducing size and cost, one-off OEM only, to \$9,000.

Xerox demonstrated its half-page-screen version of the 860 word processor, selling in Germany for £6,000, low pricing by Xerox standards.

Wang exhibited powerful new word processing software facilities, and Siemens had its system 5,300 range including the top model with an impressive full-page white-on-black screen.

Datapoint showed its new 8800 processor for its integrated electronic office for the first time in Europe.

● The Brazilian computer industry was a notable visitor at Hannover, showing terminals, small business machines and even a personal computer including a screen priced at \$940.

Packet switching 'lift-off' ahead

by Donald Kenett

ASTRONOMIC growth in forecast for data communications traffic on the European packet switching network, British Telecom International division staff told its customers last week.

Speaking at the first of a planned series of seminars designed to keep customers abreast of current and future services, operations section head Fred Ducombe said that last week's demand for IPSS has surprised and embarrassed British Telecom.

Software problems had frustrated attempts to expand the London packet switching exchange, until the end of last year, but he had been sorted out with a contractor and it was now possible to get a connection on the day it was ordered.

However, he added, packet users were being advised to wait until the summer, when connections to IPSS would be made by PSS, the national packet network, and new network addresses would be allocated to the 300 existing users.

IPSS itself had also suffered from software problems and as connections had been delayed, traffic was being completed. Work had begun to add the 300 users to a waiting list to the 35 users already connected to the pre-ordered service, although British Telecom did not want to open the floodgates to new applicants. It was hoped to start the full service next month.

By late next year, all packet switched traffic would be via PSS and the network would decide whether to route international traffic via IPSS or Bursat.

Eurotel itself would be split into three or four years and be replaced by IPSS-type nodes throughout Europe.

This was because it was too before CCITT's recommendations X25 for users and X75 for network interconnection were finalised, and it was uneconomic to upgrade it.

By the end of the year IPSS would be linked to West Germany, France, and Belgium, duplicating existing European links, and also countries including Japan and Sweden. One-way links had been implemented recently from Hong Kong and Spain, and they would become two-way links in a few months.

Next year, IPSS would be linked to Central and South America, Israel, Bahrain, the United Arab Emirates, the Far East and 12 countries in Europe.

● The Prime Minister is thought to be urging an early decision in favour of arrangements for British Telecom to raise an extra £200 million to £360 million to support planned £2.2 billion investment programmes. The Treasury would make sure any extra raised would result in orders for industry and not large new increases for British Telecom.

Investment puts TA in the red

by Brandon Gamester

HEAVY investment in product development has eaten away the profits of West German computer and office equipment company Triumph Adler.

Full details of the company's 1980 results are not yet available but it has indicated that although it operated profitably in 1979 it will show an overall loss for 1980.

Turnover rose some 30 per cent in 1980, from DM1.24 billion to DM1.65 billion (£350m). This increase, however, is largely a reflection of the company's takeover of Perce in the US, at the end of 1979. Turnover rose by only 7 per cent when Perce's figures are subtracted.

In 1980 TA invested more than DM100 million in product development.



Vic Green, director of Queen Mary College computer centre, with the ICL Distributed Array Processor.

Queen Mary College's DAP comes through with first-class honours

by Keith Jones

NEWS to raise spirits at troubled ICL comes from Queen Mary College, London, where the Distributed Array Processor added to QMC's ICL 2980 has matched its original specification and is performing extremely well, according to the director of the QMC computer centre, Vic Green.

About 100 research groups all over the UK are now running jobs on the DAP to evaluate the effect of its high level of parallelism on their data processing workloads.

Most users are university groups with funding from the Science Research Council, and while the majority are involved in scientific technical type work users also in-

clude social scientists and economists.

Green emphasises that the DAP service at QMC is not being run as a commercial bureau. Users have to write their own programs in DAP Fortran, but the language has been well received, according to Green, and plenty of assistance is available from the DAP Support Team at QMC led by Professor Dennis Parkinson, seconded from ICL.

Users can gain access to the DAP service via the Science Research Council's own networks or through British Telecom's Packet Switched Service or, if they are based in London, via the London College's Metronet.

DAP handles jobs in batch mode and consists of a two-dimensional array of microprocessors - 164 x 64 on the QMC machine - each of which is loaded with the same coding simultaneously.

Applications cover three main areas: image processing, simulation and calculation. Image processing includes jobs such as pattern matching, map and scene analysis and VLSI circuit design. Simulation spans a wide range of subjects including highly practical applications like weather modelling.

Calculation work covers applications requiring enormous computational power, such as the analysis of pipe networks.

French takeover lays 'base' for Euro-giant

by Jack Gae

A MAJOR step towards creating Europe's biggest database for economic, financial and technical information has been taken with the acquisition in Paris by DAFSA of a majority stake in the publishing firm Société Nouvelle d'Éditions Industrielles.

DAFSA has obtained a 57 per cent share in SNEI whose other big partner to the tune of 33.5 per cent is Société Nationale des Entreprises de Presse.

The alliance brings together the two biggest French firms in the industrial news sector.

DAFSA, which has a staff of 240 compared with SNEI's 180,

was created 11 years ago, like its partner turnover has progressed ever since at the same 20-25 per cent annual rate.

DAFSA's capital is shared between stockbrokers and major banks. It publishes a number of financial "bibles", including Liaisons Financières which cover the links between 30,000 firms. SNEI's Kompas publications cover 60,000 companies.

DAFSA's chairman Pierre Carbon says his company hopes to raise £9 million to set up a database. The Ministry of Industry has promised between £900,000 and £1.8 million by 1984 according to the firm's rate of growth.

Canon into micros

by David Craver

ANOTHER step from calculator to microcomputers is being made by Canon with the release of its CX-1 and BX-111 series. The new equipment is claimed to have ten times the power of Canon's current product, the BX1D, and a company spokesman said it was "Canon's real entry into the microcomputer market."

Software packages for financial accounting, stock control, and payroll will be offered, with UK

shipments of the system planned for the middle of June. The packages will be adapted from those running on the BX1D.

The CX1 has a 12-inch display screen with 1,920 characters capacity, a qwerty keyboard and ten 'key pad', two built-in mini-disc drives with 500 kilobyte capacity each (320 kilobyte user), and 128 kilobytes of memory.

Four additional mini-disc drives and an external printer can be added to the system.

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Finance Bill closes sick pay loophole

by Cliff Dillaway

THE Finance Bill last week started the process of filling in the details of payroll changes, to be effective in April 1982, with two significant alterations to existing practices which will affect computer programs.

Sick pay met by an insurance company for a trust fund will be treated as taxable, in the same way as if it had been paid by the company. This closes a loophole through which employers have been able to see that employees receive a sick payment close to their average net pay. Using an insurance company, employers' costs were reduced because they retained the benefit of the PAYE and National Insurance that was

not due. With the introduction of the planned Employers' Statutory Sick Pay Scheme, considerable amounts of tax could have been lost. The effect on payroll programs is far from clear. The Employers' Statutory Sick Pay Scheme proposals have not yet been announced and a Bill encompassing them has been withdrawn from the House of Commons.

The other Finance Bill change is the requirement that benefit of an employee's use of a car be put through the payroll and charged to tax. In effect it is a benefit in kind that is taxable but not payable, and has an opposite effect to pension contributions under the "net pay" scheme.

executive committee of the union, scheduled to meet on Sunday.

If the dispute is not resolved, bank branches in several parts of the country will be subjected to a series of 24-hour stoppages.

Data processing staff at Midland Bank may also be involved. The union's assistant secretary responsible for the Midland, Huddley Woods, said they have asked to be included in accordance with the union's constitution to allow them to express their determination to press for the full claim, notwithstanding the CBU settlement.

There are no CBU staff in the Midland. According to Woods, 97% of the 1,700 staff in five Midland computer installations are BIFU members.

Whether any further action is to be taken depends on the result of a meeting between the union and the bank which was held yesterday (Wednesday) - after Computer Weekly went to press - and on the reaction to that meeting by the

Meanwhile, the civil service unions' strike has ended by a week with no resolution of the dispute in sight. A union spokesman said: "The Government has had no approach from the union and we would not be interested in one unless there was a substantial increase in the offer."

The union has claimed 15% pay. The Government last offered 7%.

The programme of selective industrial action continues, with the major threat of union activity continuing to be the blockade of lead Revenue National Insurance and VAT payments by refusal of the major revenue collection processing computer installations at Camberley, Slough and

Southend.



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* Delegates must attend on one day only - no admission charge

Computer League ready to kick off

THE London Summer Computer League has finalised fixtures for 1981. Now in its fifth year, the league is gaining popularity with every season, with more and more teams trying to gain a place in one of the five divisions. There are six teams per division, playing full 11-a-side games on grass.

The games are played mid-week and each team has one game a fortnight. Demand has increased that this year, divisions are split into North and South, the South playing at London Playing Fields, Raynes Park venue and the North using the same at Coppermill Lane, Walthamstow.

At the end of the season, a match will be played by the two winning teams of each division, to find the overall top teams in London. A cup is provided by Computer Weekly for the winners of Division One.

Your opportunity to put Kevin Keegan in the shade comes in the Knockout competition for the Computer Weekly Cup, where there are still some places available. Teams wishing to enter should contact Danny Boreham on 01-505 5376, as soon as possible. The Knockout Cup was played for the first time last year and attracted great support, with over 200 people attending the final. Incidentally, at the disk of sounding smug, it was won by Computer Weekly, which beat Ventek 5-0.

As if all this isn't enough, there is an annual Presentation Dance held at the end of the season, which usually takes the form of a disco on a boat on the Thames.

■ Ted Samp has been appointed sales executive covering the North and North Wales at SEL Computers. He was previously sales executive in the scientific and technical division at British Olivetti. Also joining SEL is Anne Watson, who becomes support analyst at the company's Northern headquarters. She was previously a consultant with IAL Gemini.

■ Ray Jose has joined Harris Information Systems as senior sales executive. He was formerly with Data 100.



ANDREW COUSENS is the first student to graduate from Honeywell's new programmer training course which is operated under the Manpower Services Commission's computer training grant scheme. Cousens, who works for the Services Kinema Corp, studied Honeywell Level 6 Cobol programming.

Reshuffle at Amdahl

FORMER managing director of Amdahl UK and general manager of the company's Northern European operation, Peter Williams, has been promoted to general manager of Amdahl European operations.

Torry Pasolo succeeds Peter Williams. He was previously marketing director for Northern Europe.

Alan Bell, formerly regional support manager for the company's Region One (UK, Scandinavia, Belgium and the Netherlands) has been named director of product support and services for Europe.

Reporting to Bell is Brian Wilson, who is manager of the company's European Systems Support Centre.

Amdahl European Headquarters will be in London, and the reporting to Williams in addition to Pasolo and Bell will be Cal Smarling (Germany and Switzerland), Phil Lemay (France and Italy), Slim Comolot (Belgium, Luxembourg, and the Netherlands), and Robert Mayo (UK and Ireland).

Personnel changes have also been made in Amdahl's sales and marketing departments. The company has appointed David Williams as senior manager of the marketing team in 1981, who has been appointed UK sales manager.

■ Linda Ory joins TSB Computer Supplies as director of North American sales and operations. She previously spent nine years with IBM.

■ Robert Gray has left Logica, where he headed sales at the company's system engineering division, to join MMG Associates as UK sales manager.

■ Graham Griffiths has been appointed managing director of CT Computer Services. He was previously a consultant with Touche.

■ Alan Bell has been named director of product support and services for Europe at Amdahl. Peter Williams has been appointed general manager of European operations and Terry Pasolo has been appointed managing director of Amdahl UK and general manager of Northern Europe operations.

■ David Halliday has been appointed services consultant with the technical marketing division of CTL. He joins the company from ADP where he was European technical co-ordinator.

■ The part of the model marked "Analysis" describes the entity types and relationship types which are used during entity and functional analysis. The entity model is represented by the "entity type" and "relationship type" entity types.

In addition, the data on attribute types is represented, together with the actual valid values those attribute types are allowed to take, for example, code values or ranges of values. The "word" entity type describes nouns such as hour, time, overtime, colour, person and so on, and is describing which elements in the user environment use these nouns. This relationship can then be used for keyword extraction, for instance, which attribute types in the business describe aspects of overtime. This is a form of indexing system and also an aid to definition. This indexing is sometimes known as keyword in context, KIC, and keyword out of context, KOC.

If the elements in management services are to be managed effectively, additional entity types and relationship types are required to help in the management function. Definitions of attribute types, entity types, etc. may be distributed to certain users. If we want to provide indexes for these people or find out who must be informed if a definition changes, then this relationship type will help us.

Similarly, we may wish to know who the custodians of elements are, in order that we can review the element's use and effectiveness. We may also wish to know who has the authority to access those elements (privacy). The three relationship types between the job and element can provide us with this information.

The functional analysis entity types are the event, function and function structure. Event and function have already been covered in these articles. The function structure entity type describes the decomposition of the function into sub-functions. It is, in effect, a bill-of-materials type of entity type.

■ The part of the model marked "Design" describes how the elements and functions found at the analysis stage were mapped using the mechanisms available. The mechanised function structure describes how a function, when related to another function, is implemented.

As a result of this level of implementation we have designed systems or applications (connected sets of programs, or clerical tasks), programs, modules, subroutines, manual or clerical tasks and so on.

■ The part of the model marked "Implementation" describes the actual computer file, implementation of system, job description etc.

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SO much has been written and said about the data dictionary that it may seem pointless to have yet another article emphasising its importance in the management services function (data processing, O&M, etc).

A data dictionary is important, however. It is the management services' own database system and has such potential as a means of automating the functions within management services and as a provider of information, that one can scarcely be in danger of overestimating it.

One definition of a data dictionary is as "a repository of data about data" (James Martin, principle of DB Management). "Data about data" is sometimes known as "meta-data".

This is a neat definition, it tends to hide the extent of the influence a data dictionary should have within management services. A data dictionary is, in fact, a model of the management services environment, which automates some of the functions of management services.

Thus, for example, if we examine the entity types of the management services environment we will identify:

Designer - record types, systems/applications, files;
Programmer - programs/nuclei/subroutines, jobs;
Analyst - attribute types, entity types, events, functions, relationship types, etc.

If we also examined the functions of management services we would see:

Analyst - functional decomposition, entity analysis, access path analysis, entity life cycle analysis;
Designer - record design, layout design, transaction design, program design;
Programmer - program writing, job writing, producing test data, testing programs.

If we look at data dictionaries in this way, we can see that the resulting DB database and system could be as complex and large as any system we might write for a user and that, potentially, a data dictionary is a powerful tool.

There is not a single management services function that could not either be automated or be assisted by the provision of information which would take the drudgery out of the function.

The DP department thinking of using a data dictionary is faced with three alternatives: a totally manual DDS, a package or a DDS developed on-site.

It should be obvious, from the previous paragraph, why a totally manual data dictionary is impractical for all but the smallest DP department. Unfortunately, the department is then left with two alternatives - to write their own, or to buy a package.

The development effort required to write a good data dictionary system is much the same as that required to write any large database system. In other words, we are talking about man-years of effort rather than man-weeks. Not many DP departments can justify this development effort.

We are then left with the package. Until now, most packages have concentrated almost exclusively on the functions and data required for program support.

Analysis is, yet again, a neglected area, as we have hardware planning, software evaluation, and hardware operation related functions (e.g. saving tape libraries, disc libraries, monitoring hardware usage, etc).

The package developers have concentrated, for obvious commercial reasons, on an area which causes problems at present and which DP departments themselves recognise as an area for automation.

Unfortunately, this does not mean that the package planners, designers, and programmers have not

been able to develop a package which can handle the analysis and design stages of the data dictionary function.

As a result of this level of implementation we have designed systems or applications (connected sets of programs, or clerical tasks), programs, modules, subroutines, manual or clerical tasks and so on.

Repository of data-about-data is a potentially powerful tool

I would not like the reader to assume that all packages offer only this limited support. There are a few notable exceptions, such as ICL's 2900 data dictionary system, which does support the analysis functions. Some other package vendors are beginning to develop their dictionary packages to include the additional functions required.

At present, however, the analyst is usually faced with having to adapt the package (i.e. use it in a way which was not intended) in order to obtain any mechanised support for the analysis function.

In Figure 1, a much simplified entity model of the management services function has been drawn, to show the scope and complexity of the environment the data dictionary should be attempting to map. Note that many entity types and relationship types have been omitted for simplicity's sake.

It is worth "walking through" the model to understand what the entity types and relationship types are describing.

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puter jobs (collections of programs in a predefined order).

The mechanised attribute types are called data items. They result from mapping the attribute types to the record types. Note that there can be more than one data item for any one attribute type.

The data items are treated, accessed and stored together as one unit which is known as a record type. Note that we can include within this definition source documents, a line of computer printout, forms, or transaction types, and that record type within DBMSs goes by other names, e.g. segment type. The record types are themselves treated and stored together as one unit and this is known as a file. Again, this includes report files and manual files.

Just as we held information on a function's use of an element at the analysis stage, it is also useful to hold information on a mechanised function's use of the mechanised elements. In this category there is the item usage sub-type, record usage and so on. Questions such as "If I change the permissible attribute values of an attribute type, which programs will it affect?" can all be derived using this structure.

One interesting extra relationship type is shown between user and mechanised function, and describes which job is responsible for performing these clerical/manual tasks when implemented.

■ The part of the model marked "Implementation" describes how the mechanised functions and elements are implemented using the hardware, or in manual terms, actual filing cabinets, etc. A file "Employee record file", could be implemented (as part of the implementation of the system) on several disc packs.

If a system is only implemented once, obviously this relationship between physical mechanism occurrences, i.e. actual discs, magnetic tapes, etc., and mechanised elements or functions is one to one, but where there is more than one implementation the relationship is many to many.

Having looked at the model of the DP environment, we can now turn our attention to the functions. It would be impossible to list all the functions which could be handled by a data dictionary, there are too many. Some functions have therefore been picked out which have not often been covered by previous articles in data dictionaries.

System conversion: By documenting the old system and the new system and the relationship between the elements of the two, the data dictionary could control the conversion.

Validation: All basic validation on transactions could be done via a generalised program, as the format, valid values, etc for each data item within a transaction type are known.

Distributed processing mapping tool: The dictionary could hold details of each of the distributed

systems (and their data) and use the overall entity model as the conversion factor.

Program writing: Automatic report generation - since a dictionary knows where data is to be found, and how it is related, it can be the foundation of a generalised inquiry system.

Documentation: It is worth mentioning that practically all documentation could be produced from a data dictionary, e.g. record layouts, report layouts, etc.

Sub-schemas and schema generation.

Database design: The data dictionary cannot yet perform the functions, but as has been seen in earlier articles, it can provide the information needed for database design.

Entity type usage: For entity life cycles.

Consistency checking: Between programs and DBMS.

DBMS performance optimisation/database tuning.

Storage design: As an aid.

Operational performance evaluation: Comparing what was expected with what is being achieved.

Software evaluation: Helping with the comparison between the functions and the model required

and those supported by the application package.

Designing systems for security and audit (used as an aid by showing where redundancy and interactions are).

Generating Input/Output modules or controlling the opening, closing and accessing of files, including privacy control.

Generating JCL and test files.

Analysis: Many tasks can be aided or performed by the data dictionary, such as cluster analysis of the functions to determine the best grouping of functions into applications.

The data dictionary is describing one of the functions of an organisation and is no less an integral part of the business than any other function such as selling, buying, etc. In fact, it is the function upon which all the other functions in the business depend, and there should be interaction between the data dictionary and all the functions of the business.

In essence, the data dictionary should always be used as the source of data about data. For

example, programs should never have to declare code values and meanings - the information should be obtained from the data dictionary, thus ensuring the consistency of the database.

The aim of this article has not been to describe what data dictionaries do at present, but to show what data dictionaries could do and how the scope could be broadened so that they serve the management services function as a whole (i.e. organisation and methods, work study, hardware planning, database design).

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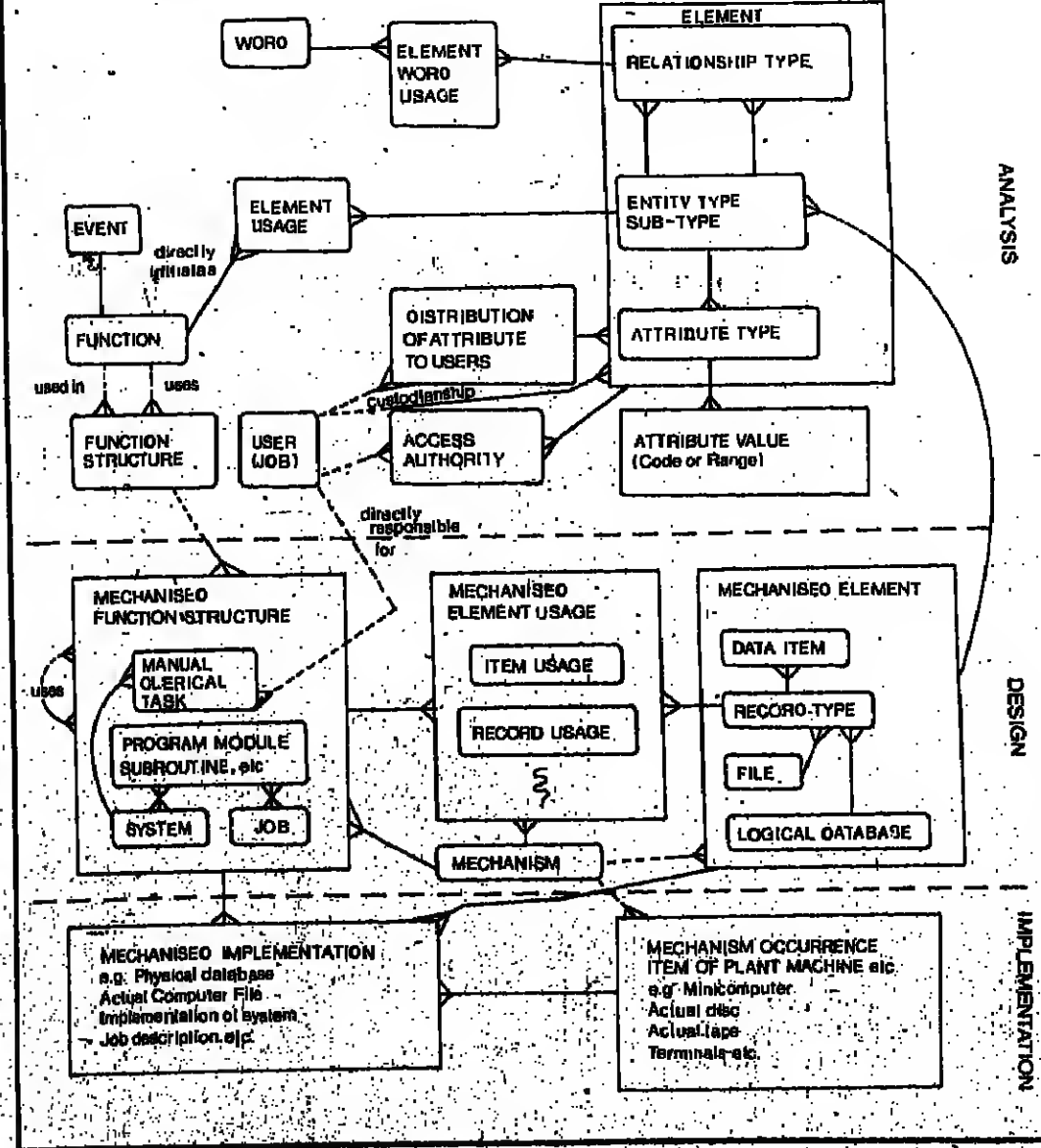


Figure 1. Simplified entity model of data processing function

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CONFERENCES

SYSTEMS 81, to be held at the Munich Trade Fair Centre from October 19-23, will bear the imprint of increasing interpenetration of computer technology, office technology and communications technology segments of the overall information technology market. The theme of the conference is Thinking in Systems. The spread of decentralised data processing and the introduction of new information transmission services such as Videotext are a clear indication that today modern information processing is no longer feasible without sufficient knowledge of the application possibilities offered by telecommunication. The conference will go

into the development of applications and possibilities of telecommunication in depth. Delegates from Muehner Messe-Ausstellungsgesellschaft and MesseLandschaft, Portland 12 10 80, D-8000 Muenchen 12.

Finniston Report

SIR Monty Finniston, ex-Head of British Steel, will address the British Steel branch of the BCS at a meeting on April 23, to be held at the Waldorf Hotel, Aldwych, a 1.30. The event is a joint meeting with the Institute of Management Services and the subject of Sir Monty's speech will be The Finniston Report.

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VT 103 terminal with speedy access time

RAPID Recall is introducing the VT 103 microcomputer terminal as a complete microprocessor unit for use either as a local distributed network processor or as a standalone system.

The VT 103 comprises a CRT monitor, detachable alpha numeric keyboard plus separate numeric keypad and an LSI-11 backplane providing slots for up to eight plug-in boards.

Designed by Digital Equipment Corporation (DEC), it is available in the VT 103-AA and VT 103-BA versions, the latter incorporating two TU 58 mini cassette drives and their associated read/write control logic providing mass terminal storage facilities.

Based on DEC's successful VT 100 terminal, the VT 103 CRT monitor has a 132 column by 24 line display presenting 7 x 9 dot matrix characters with true descenders and ascenders for easy reading.

Other important features include operator-selectable double height/double width characters, double density, normal and re-

verse video, blinking and variable tabulations.

The detachable keyboards has a standard QWERTY typewriter layout, with special function keys for editing and data communications. The separate 18-key numeric keypad speeds the numerical data entry.

The VT 103 includes an internal power supply for the LSI-11 backplane assembly and a cooling fan. Provision is made on the backplane for +5V and +12V dc battery back up power supplies to be connected.

Rapid Recall says that a complete and powerful microcomputer system can be configured using the VT 103 by plugging in LSI central processor, memory and serial line interface or multifunction modules.

A comprehensive system can be built up from standard products to suit individual applications, says the company.

The factory-installed TU 58 tape drive on the VT 103-BA is a

tape cartridge mass storage system that will handle up to two drives of 256 K bytes each. It communicates with the processor via a standard serial port at speeds of between 150 and 38.4K baud.

Main advantage of the unit is that Rapid claims it provides bulk storage and fast access at reasonable prices.

The unit employs an internal microprocessor enabling information to be stored and retrieved.

Average access time is 9.3 seconds and blocks can be erased and rewritten without disturbing adjacent blocks as they are of uniform size.

The VT 103 can be employed as a simple terminal, a general purpose microcomputer with integral mass storage capability or an intelligent terminal with a free explanatory brochure available from Rapid Recall.

Rapid Recall Ltd (CW), Rapid House, Denmark Street, High Wycombe, Bucks HP11 2ER. Tel: 0494 26271.

EPROM eraser package

MICROSYSTEMS Services of High Wycombe has introduced the Model EP-10 low cost unit to its range of EPROM erasers, directed towards hobbyists, programme of products requiring a relatively small number of EPROMs and equipment manufacturers interested in large numbers of simple crossing units.

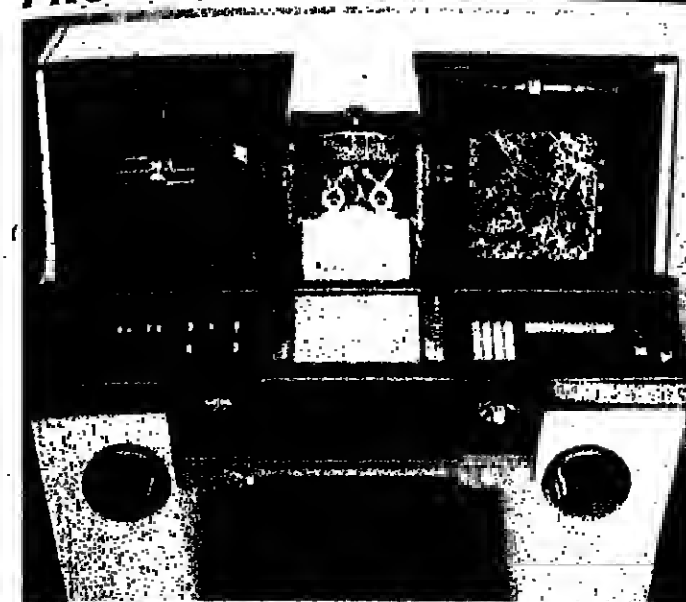
EP-10 is said to erase up to 24 to 28 pin EPROMs at a time. Its radiation drawer is arranged so that a high-intensity UV lamp irradiates at ten micro-metres with the same energy and the entire unit weighs only four kilograms.

A built-in lamp shows when power has been turned on and a safety interlock shuts off the ultraviolet source when the drawer is opened.

Normal operational voltage is 230V 50 Hz with optional 110V 60 Hz and tube life rated at 2,000 hours.

Microsystems Services (CW), 11 Duke Street, High Wycombe, Bucks HP13 6EE. Tel: 0494 41661.

PRODUCTS - 2



Kern DSR 1 has a range of cartographical applications.

Televideo VDU on offer

BELFER (Derbyshire)-based systems and terminals house Mid-electron has added the Televideo TVI 950 to its extensive VDU range.

TVI 950 retains all the 920C model features with the addition of 11 user-programmable function keys, advanced editing with wrap-around, split screen with line lock and selectable smooth scrolling.

It also includes a 25th status line for continuous display of terminal configuration and 15 special characters for powerful line graphics.

With its detachable keyboard and tiltable non-glare screen, the TVI 950 may appeal to all operators and has the option of up to four pages of memory.

Mid-electron Ltd (CW), Mid-electron House, Nottingham Road, Belper, Derbyshire. Tel: 077-382 6811.

Kern stereoplotter has map-making potential

APPLYING microelectronics to cartographic problems has led to a Kern stereoplotter carrying out all the functions of a conventional first order stereoplotter and incorporating many additional features said to be unavailable on other manufacturers' instruments.

The Kern DSR 1 system can handle a wide variety of inputs.

Unlike many other first order machines, the DSR 1 system is said to accept many different formats including satellite photographs like Skylab 46 x 23 cms format.

An integral microprocessor compensates for wide scale differences between two given pictures in a stereo pair and also corrects yaw and skew variations between pictures due to attitude or positional differences in the aircraft taking the photographs.

Although microprocessors are used extensively in the stereoplotter, the DSR 1 system is also compatible with a powerful Digital Equipment PDP-11 series minicomputer.

Using Digital's powerful Unibus data highway, the stereoplotter can be linked to the DSR 1 cartographic digitising system.

DSR 1 users will also have access to conventional DP peripherals via Unibus, including mass storage, plotters, printers and other input output devices.

Laser point marker facilities are said to help the user make indelible marks on the surface of photographic emulsions, enabling the operator to make tie and pass points on the stereo model.

This is useful when carrying out aerotriangulation in areas such as deserts which are devoid of useful physical features on the surface.

There are three separate computer processing centres within the DSR 1. The P1 interfaces with the operator via the console during on-line operation and helps to process application programs.

P2 also communicates with processor P3, sending data to an external PDP-11 series computer or a standalone graphics peripheral.

P2 deals with the data transformation process from information fed to the instrument by the operator via P1 and accommodates

earth curvature, atmospheric refraction and lens distortion automatically.

It implements repositioning instructions from the operator, transmitting positional co-ordinates and step-by-step setting up and operating instructions to the operator via P1.

P3 provides information to the operator in an operator-compatible form and acts as a prompter, making sure the operator does not miss out vital information needed for a particular application program.

It accepts and interprets operator commands, displaying data on a VDU and interfaces directly with processor P1.

The Kern DSR 1 is claimed as one of the most cost-effective stereoplotting systems on the market, its £47,500 price - including external PDP-11 computer - being in line with older first order analogue machines.

Survey and General Instruments Ltd (CW), Technical Instrument Division, Firecroft Way, Edenbridge, Kent TN8 6HA. Tel: 0732 864111.

Keeping disc flow moving

ARROW Computer Systems has announced the UK release of Minicomputer Technology's latest rotating disc controller for the DEC PDP-11.

Designated the EDC21, the controller emulates the DEH RH11 connected to multiple RM02/03/05 drives and runs under current revisions of RSTS/E, RSX-11M and RT-11 without software modification.

The EDC 21 will handle up to four drives, including Winchester types, in the cartridge module, storage module, fixed module and minimodule categories.

Any combination of drive capacities (e.g. 80, 160, 300 and 600Mbytes/drive) and most combinations of drive categories can be supported on a single controller.

The EDC21 has dual access capability as standard allowing two CPUs to share a common database on dual ported drives.

The single unit price is £2,500. Arrow Computer Systems (CW), Rosemount Tower, Stafford Road, Wallington, Surrey SM6 8RW. Tel: 01-647 0962.

Providing a good atmosphere

WHAT is claimed as the latest in environmental engineering technology has been incorporated in the Compac 81 range of close control air conditioning equipment.

The development comes from Wright Air Conditioning of Birmingham, which specialises in the environmental requirements of computer users and production of the range has begun already.

Wright hopes to contain production costs through a manufacturing process study, an important achievement in the light of current inflationary trends.

The company's design and development team has produced its own Wactronic one-board electronic controller with in-built memory system including a recycle to zero to prevent maximum power draw and shut down.

Compac 81 provides a supply air temperature of 60 degrees Fahrenheit (15 degrees Centigrade) to the underfloor void. This feature eliminates cold draughts at floor level and reduces the possibility of thermal shock to the computer.

Wright claims the sensible heat ratio to be upwards of 0.99, increasing cost effectiveness and running costs per ton of refrigeration delivered.

Introducing a solenoid valve is said to offer a new coil characteristic providing a lower sensible heat ratio when the dehumidification

cycle is required, which minimises re-heat requirements in turn.

The humidifier tank has hot and cold sections to meet local water authority requirements and cold water supply to the tank is controlled by a solenoid valve offering conservation benefit.

The tank incorporates a timed flushing facility enabling it to be cleaned at regular intervals, particularly important when dealing with hard water.

Compac 81 has a capillary fed evaporator which eliminates the need for expansion valves and reduces setting up time and maintenance.

The floor supply range will comprise six models, the smallest being the F86 with a total cooling capacity of 63,000 British Thermal Units per hour on the F8 21 (252,000 BTU/hr). Room Supply (RS) equivalents will be introduced this autumn.

Compac 81 is produced as standard in direct expansion (DX) versions, four options being available on request. The options are low pressure hot water heating coils as alternatives to electric water heaters, chilled water units, in-built water cooled units and glycol economy cooling coil.

Wright Air Conditioning Ltd (CW), Sampson Road North, Camp Hill, Birmingham B11 1BL. Tel: 011-773 8421.

Multi-terminal system

OLIVETTI has introduced the TC 1800 multi-terminal concentrator system aimed at the distributed user. The TC 1800 is an open-ended product said to offer clustered system flexibility, more work stations, ergonomically designed keyboards and VDUs.

The TC 1800 has been developed from the earlier TC 800 to

give improved performance based on contemporary technology. It comprises two basic keyboard and visual display modules to which may be added printers and floppy disc unit peripherals for autonomous operation.

There is a wide range of specialised terminals, each catering to a specific user requirement.

For instance, the TC 1800 has been ordered by some banks and finance houses; workstations may be adapted for use at bank counters, incorporating badge/credit card readers and PIN pads for example.

The TC 1800 is flexible, allowing different components to be added modularly, enabling units to be placed anywhere in relation to each other and ergonomically.

The system may also operate with Olivetti systems such as the ATS automatic teller.

British Olivetti Ltd (CW), 30 Berkeley Square, London W. Tel: 01-679 8807.

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IBM all set for PoS revolution

THE GENERAL Systems Division of IBM UK has announced a forthcoming 5265 point-of-sale terminal providing up to a fourfold increase in memory capacity besides the Diskette 2D (.98 mb) announced already.

The 5265 will be available from October and is part of the IBM 5260 Retail System usable by retail stores to register, capture, monitor and track sales information. Terminals can transmit sales and other information to a computer to generate real time sales reports.

With increased memory capacity of up to 128K bytes, the 5265 models enable more price and credit information to be stored in each terminal, allowing retailers to implement faster and more efficient register operations.

Using a six digit item code, sales staff to retrieve automatically selling prices of 16,000 items or

check credit status on up to 24,000 six digit account numbers.

Communications capabilities will allow retailers to update information stored in the new models from a central location.

Changes to price and credit files can be created at a central computer site, then transmitted via telephone lines to unattended IBM 5265 branch store terminals.

File changes and message printing can be initiated automatically - again with the 5265 terminal operating unattended.

Existing IBM 5265 models can be upgraded to include all the new functions and purchase prices for the new models range from £3,152 to £4,281, with monthly lease/rental charges ranging from approximately £135 exclusive of VAT.

IBM UK Ltd (CW), PO Box 32, Alencon Link, Basingstoke, Hants RG21 1BJ Tel: 0256 56144.

Floating point processor raises Eclipse potential

A FLOATING point processor (FPP) said to make the Eclipse MV/8000 computer the fastest 32-bit virtual memory machine is being marketed by Data General.

Floating point instruction formats for the FPP are identical to the previous Eclipse MV/8000 microcode formats, resulting in total user transparency to floating point implementations.

Programs written earlier for the MV/8000 system will run without modification using the FPP. Users with installed 8000 systems can upgrade their configurations to include an FPP and, because the

processor is user-transparent, no reprogramming is necessary.

In the event of a problem, microcode instructions for the non-FPP instruction set can be booted into the system so that operations can continue in a slower mode, but with no downtime.

This is claimed as unique to Data General because the Eclipse MV/8000 is described as the only 32-bit mini-mainframe with RAM-based microcode.

Data General Marketing Communications (CW), 724-734 London Road, Hounslow, Middlesex TW3 1PD.

Olivetti TC 1800 has open-ended function.

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Ref: S1/0904

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30 Fleet Street London EC4Y 1AA Telephone 01-353 0981 24 hours

DATA PROCESSING MANAGER

LONDON

£10,000 + Car

Our client, a successful and expanding service company, have achieved market leadership through applying OP solutions to their day-to-day problems in a creative and unique style.

As a member of the management team - responsible for all OP activities, the DP Manager is expected to contribute his or her expertise to the overall development of the Company.

Ideally experience will include at least three years of the ICL 2903/4 range. The DP Manager of the ME 29 would be an advantage. FPG 2 or COBOL systems analysis, supervisory or management responsibility. Age is less important than evidence of a high level of intelligence, well-developed communication skills, the capacity to learn rapidly, a heightened commercial awareness and above all the capacity to work in a practical manner within constant time pressures to exacting standards.

The rewards are excellent, not least the opportunity to become involved in many aspects of the company's business.

Please write with full details of your career to date and quoting reference no. 105/282 to Gavin C. Adam, Director.

Professional Personnel Consultants Limited
Orchard House, 1 Orchard Lane, Huntingdon, Cambs.
Telephone: Huntingdon (0450) 65335/65336

"an equal opportunity vacancy"

Computer Services Officer

£10,092 - £12,736 p.a. Based Aberdeen.

Aberdeen is a city with its own cultural life, and exceptional leisure environment. Academic life centres around the University. Restaurants, clubs, libraries and other social facilities are abundant. The Health Service in Aberdeen is probably one of the most advanced in the country and currently has a vacancy for a Computer Services Officer.

Based at the Board's Computing Centre, the person appointed will be a key adviser on the use of computers and will be the administrative and technical head of all data processing activities. Should discussions currently taking place with neighbouring Health Boards lead to the establishment of a Northern Computer Consortium, the successful candidate will assume the role of Computer Consortium Manager.

Applicants should have extensive experience of computing in sizeable installations, along with the ability to control systems design, programming and operating staff. Knowledge and experience of data base management, financial and budgetary systems are desirable requirements. Knowledge and experience of the Health Service would also be a considerable advantage.

The salary for this appointment is on a scale of £10,092 rising by 5 increments to £12,736 per annum. Additional benefits include 37 hour week, sick pay and superannuation schemes, 5 weeks plus 10 days statutory annual leave, a pleasant working environment and assistance with relocation expenses, if applicable.

Forms of application and job description may be obtained from the Area Personnel Officer, Grampian Health Board, 1 Albany Place, Aberdeen. Tel. 0224 29801, with whom completed applications must be lodged by 31st May 1981.

GHB

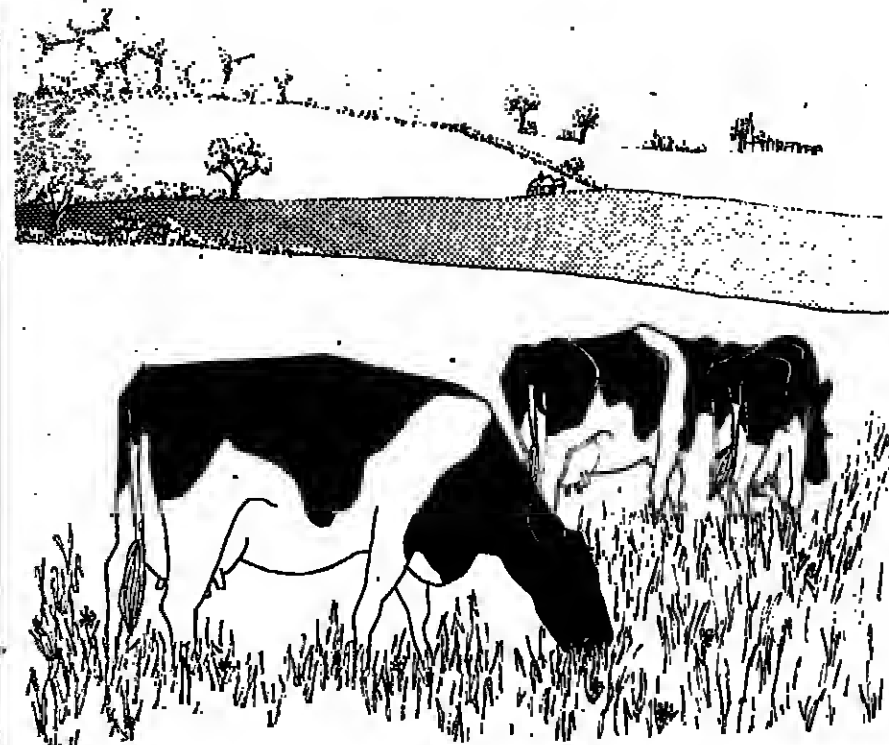
Grampian Health Board

Always time for you

مكتبة ابن خلدون

MYRIAD

Your future in Hampshire



The company's head office is situated in North Hampshire and is well served by public transport to surrounding towns and villages and also enjoys fast road and rail links to Central London and the South Coast. Apart from working in modern offices, and benefiting from comprehensive employment conditions, GENEROUS RELOCATION ASSISTANCE is provided to an area where housing is attractively priced.

Ref: RS1/0903

Our client is one of Europe's largest manufacturers of agricultural feedstuffs, and market a range of products which have earned a high reputation amongst all types of livestock farmer.

The company's commitment to Data Processing is reflected by an impressive range of hardware to complement their sophisticated business systems. Utilising ICL AS/5 (IBM 370 plug-compatible) mainframe facilities, together with PDP 11-70, two PDP 11/34s and twenty Ventek Datapoint minis is enabling them to pursue a policy of distributed processing and this has created two interesting opportunities for computer professionals wishing to further their career in a dynamic environment.

DISTRIBUTED PROCESSING SUPPORT PROGRAMMER to £7500

Centred around a national network of Ventek minicomputers, this position offers an ideal opportunity for a programmer with at least two years' experience to gain involvement in the support and development of a comprehensive factory computing system.

Candidates should ideally have experience in a minicomputer environment and will receive training in the DATABUS language where necessary. A current driving licence is also necessary.

DEVELOPMENT PROGRAMMER to £6500

With extensive new development planned to commence shortly the successful applicant will contribute effectively to the company's computer applications.

Offering experience of COBOL, DIBOL or PL/I and an appreciation of minicomputers will enable you to be involved in the specification, design and programming of interesting applications.

JUNIOR BUSINESS ANALYSTS

CITY £7500-£9000

A major international organisation is urgently seeking to appoint an additional two ambitious and self-motivated people following the expansion of its City office.

Applicants will be interested in business matters; keen to develop management skills in a position offering job satisfaction, high rewards and the opportunity of developing personality and expertise in the Computer industry. Dealing with people, developing relationships and understanding client requirements will be a major aspect of the work, involving communications and computing skills.

Under 27 years of age you should be well educated with either programming or analysis experience gained in a commercial environment. In addition to a confident and outwardgoing personality the ability to work on your own initiative is a key requirement and the potential to grow with the company is of prime importance.

These positions offer a first-year salary in the range £7500-£9000 and substantially higher rewards will be achievable following comprehensive training during the first year of appointment. The company offers a professional approach to computing issues resulting in a high competitive spirit and united commitment to growth.

Ref: E1/0904

UNIVAC 1100 - IBM 370 MINICOMPUTERS TECHNICAL PROGRAMMER

WEST LONDON 1½ YRS. + COBOL TO £8000

An interesting opportunity exists for an enthusiastic programmer to join a small group engaged in a wide range of systems activities. The successful candidate will design and develop small specialist systems to run on both mainframe and minicomputers as well as providing detailed technical support to users.

This role is most likely to suit a person with eighteen months to two years' COBOL experience who is looking to move away from the routine of project development into a role where his/her talents, interests and abilities will be given ample scope to expand and where a working knowledge of a wide range of hardware and software will be rapidly gained. A current appreciation of a second language will be advantageous as would a Computer Science degree, although this is by no means essential.

Our client is a major international engineering and construction organisation based in Hammersmith. They offer excellent career prospects and benefits including free life assurance, flexi time, paid overtime, interest-free season-ticket loans and a company pension scheme.

Ref: N1/0904

MYRIAD APPOINTMENTS LIMITED

30 Fleet Street London EC4Y 1AA Telephone 01-353 0981 24 hours

Sales Management

c. £25,000

THE VALUE OF THE COMPUTER IS STILL LARGELY DEPENDENT UPON SUCH HUMAN TALENTS AS SKILL, INGENUITY AND CREATIVITY.

That is why considerable success has been achieved by the company's clearly defined sales philosophy and a support program unique within the computer services industry. With a turnover in excess of \$200m worldwide the time has come to expand the U.K. activities by creating a new operation.

You will be a goal orientated man manager with a proven sales track record in sophisticated commercial D.P. applications and also have the ability to build a successful sales and support team. The successful applicant will enjoy considerable autonomy and the position will lead to associate director level within U.K. operations.

In the first instance, telephone **MIKE LINFORD** on 01-405 0442. Or, send a brief C.V. for his attention to: High Holborn House, 49/51 Bedford Row, London WC1V 6RL.

Any approach will be treated in the strictest confidence.



Michael Page Partnership
Recruitment Consultants
London Birmingham Manchester

GERMANY

SENIOR SOFTWARE PERSONNEL

We are an established systems house specialising in the real time applications of micro and mini computers to process control, communications and terminal based systems.

Our German subsidiary was formed in 1975 and has built up a solid customer base with industrial concerns. We are increasingly taking on total responsibility for major projects and we wish to recruit additional staff capable of working at project leader level. Applicants must have several years relevant experience and a working knowledge of the German language.

Projects on which we are working and where we have full software responsibility include:

- Monitoring and control of the runway lighting system and the total energy supplies at a major European airport
- Airport line tracking system for a steel works involving nine linked computers
- Development of interactive colour graphics and data acquisition systems for nuclear power stations
- A micro processor driven rolling road control system for the German automobile industry

We offer competitive salaries, a generous relocation package, thirty days holiday per year, profit sharing, company car, and contributory medical insurance etc.

Interviews will be held in our London office by Neil Jennings.

Please apply to: Ray Stegman

DIGITAL APPLICATIONS INTERNATIONAL GmbH
Herzogenstrasse 81, 8076 Neu-Ulm, Germany
phone no.: 08102/38071

DAI

alba

Aluminium Bahrain (ALBA) is the major aluminium producer in the Arabian Gulf. Established in 1969, the company now employs some 2000 local and expatriate staff. Current major expansion creates rewarding opportunities for:

Programmers

COBOL

£ negotiable - upwards of £10,000 net of tax + substantial benefits
BAHRAIN

to make a significant contribution within a 2 year contract to the company's established central computer department. Set up in 1974, and now employing some 30 staff, the department is involved in the development of on-line systems on an IBM 4331.

Candidates should have a minimum of 3 years' COBOL experience; VSAM or CICS knowledge would be an advantage. Program development will be on-line using I.C.C.R.

Salary, at present totally tax-free and freely transferable, will be negotiable in a five-figure range.

In addition, substantial benefits include: * 32 days' annual leave plus 12 days of

Public Holidays * rent-free furnished air-conditioned bungalow * full recruitment and repatriation expenses * annual return air-fares for employee and family * assisted education for children * free medical care and life assurance.

Bahrain is a stable country with a liberal government. English is widely spoken and the company is experienced in the rapid and smooth entry of expatriate staff into the local community. Extensive sports and social facilities exist.

Please write with full details to: K.W. Rowe, Alba Smelter Services Limited, 22 Grosvenor Street, London W1X 9PE.

151071

Software Research and Development

We are still growing fast. Our product development plans for the 1980's call for highly-talented software designers, particularly with structured design experience.

We are at the forefront of product development in the fields of networking, advanced communications, transaction processing, database, information processing, software technology and system recovery techniques.

We would be pleased to hear from the following experienced people:

SYSTEMS PROGRAMMERS
c. £9,000 p.a. 3-6 years experience.

ASSOCIATE PROGRAMMERS
c. £7,000 p.a. 1-3 years experience.

These are all first rate opportunities, not only for those wishing to spread their wings and take responsibility, but also for those who want to work in an environment that rewards skill, effort and achievement.

Free BUPA, generous relocation, pension scheme, free life assurance and preferential company stock purchase plan are all part of our comprehensive package.

If you have experience of a mini or mainframe systems environment and are looking for career advancement, contact: Debbie Teague on 0234-65121 or write to her at Prime Computer, Research Development and Engineering, The Merion Centre, St Peter's Street, Bedford MK40 2PN.

PRIME Computer

UNIVERSITY OF LIVERPOOL
Department of Computational and Statistical Science
Lecturer
In Computer Science/Computational Mathematics

Demonstrator/Senior Demonstrator
In Computational Mathematics

Applications are invited for the above positions. The department gives courses in Mathematics and Statistics at the Undergraduate and Postgraduate levels. The department is also involved in research in the field of Computational Mathematics. The successful candidate will be responsible for the teaching and supervision of students, and for the development of the department's research programme. The successful candidate will be expected to contribute to the department's research programme and to the development of the department's research programme. The successful candidate will be expected to contribute to the department's research programme and to the development of the department's research programme.

FOR CLASSIFIED ADVERTISING USE
DIRECT LINE
01-661 0121

Chief Operator

Digital place great emphasis on continuous systems advancement. The European Software Engineering unit at our Reading location is responsible for the development of innovative new software for a wide variety of commercial and industrial applications worldwide.

The ever increasing workload within this expanding environment means we're now looking for a talented Chief Operator. You'll report to the Operations Manager and will assume day-to-day responsibility for the efficient control of all computers, peripherals and operating all. This will entail maintaining accurate usage records, planning operating schedules and providing users with sound technical advice.

To make a positive contribution within this important, day only role, you'll need a flexible approach to the job, sound administrative abilities, good all-round communicative skills and a management potential. In addition, a working knowledge of VAX/VMS telecomm and other manufacturer hardware would be a distinct advantage.

We offer a high initial salary and a full range of valuable benefits. Naturally, success in this role will lead to career development opportunities within our diverse organisation.

For more information, please telephone Sheila Newman on Reading (0734) 85131, ext. 293, or write to her for an application form at Digital Equipment Co. Ltd., Acra Road, Reading, Berks, RG2 9AT.

digital

Australia & New Zealand

Salesmen and Systems Engineers

Senior EDP Opportunities with Fujitsu Ltd.

Fujitsu Ltd is Japan's largest computer manufacturer with revenue in the last trading year exceeding US\$2 billion.

Fujitsu Ltd has been in existence as a company since 1935 and has been manufacturing computers since 1952. To date Fujitsu has shipped over 40,000 computers, mainly within Japan but increasingly over the past six years to countries outside Japan.

In 1975, Fujitsu manufactured the first all LSI computer, the M190, (equivalent in power to an IBM 3033) and since that time Fujitsu has kept its technological lead in both performance and price over the major North American manufacturers.

Fujitsu now manufactures a full range of advanced LSI mainframes from the M130 (about an IBM 4331) to the M200 Quad Processor, which at 28MIPS is the most powerful non vector processor available in the marketplace.

All these systems use highly sophisticated Fujitsu developed operating systems. For the smaller systems there is F2, which is equivalent to a functionally enhanced DOS/VSE. From the M150 upwards there is F4, which offers the power and facilities of MVS without the complexity of operation or the system overheads.

Facom Australia Limited

Facom Australia Ltd (FAL) was formed in June 1972 to market Fujitsu computers in Australia. Since that time the company has progressed steadily developing a customer base and building a professional marketing and support organisation.

Our success in achieving these objectives can be measured in several ways, but some of the key reasons that we are winning an ever increasing share of the Australian market are:

- Our reputation for reliability of hardware and software is such that we often contract for 99% availability 42 of our 80 installations did not record any down time in the last 6 months.

- Our prices are set to give us a price/performance edge over our competition.
- We meet very short lead times and supply high quality support services.

We now operate in all States and in New Zealand and employ over 400 people. Our customers include Federal and State Government organisations, and some of the largest Corporations in Australia.

In the past sales year we sold over A\$40 million worth of 'M' Series computers including an M200MP to the Federal Government which is the largest computer installation in Australia. We have also sold another 30-40 'M' series machines in all States.

In terms of hardware sales this means that FAL is becoming the second largest supplier of computers in Australia (behind IBM). It also means that we have many job opportunities to offer to cover our explosive growth this past year to ensure that the momentum built up does not slow this year.

The Sales Opportunities A\$48K Upwards

Location

We require salesmen in all States but especially Melbourne and Wellington.

Experience

The successful applicant will have about 8 years in the mainframe business of which the first 50% would be in a technical role, with the last 50% in direct sales. He would be in his late 20's or early 30's and would be able to prove a stable domestic background and work history. He would also have a good scholastic and starting record.

Remuneration

In this sales year we anticipate all our salesmen will achieve their quotas. At this quota level, based on this year's performance, an experienced salesman would earn A\$56,000.

Remuneration is split between the various tax free allowances, salary and commission and achievement of 100% of quota earns a trip for the salesman and his wife/friend to the Facom Forum which is held in an overseas location.

The Systems Engineering Opportunities A\$25K Upwards

Location

We require SE's in most States and in Auckland and Wellington.

Experience

The areas of expertise we are seeking include: • Operating System Support • Data Communication and Networking • Database • Project Management • Customer Education.

The people who will find it easiest to adapt to working with a FJ Hardware/Software environment would be those with comprehensive background in MVS or VSI systems. However, significant experience with other large systems such as Univac 1100 series would be appropriate.

It would be expected that successful applicants would have 8-10 years experience in the industry with a high skill level in one or more of the above areas.

Remuneration

Will depend on the type and degree of previous experience but a package in the vicinity of A\$27K to A\$30K should be taken as a guide.

Higher salaries would be offered to outstanding applicants. The salary package includes allowance covering car, business hospitality and telephone expenses.

Assistance with relocation costs to Australia and New Zealand will be negotiated with successful candidates.

Interviews will commence on 4/5 May.

Applications should, in the first instance, be made to Prescott Computers Limited. Prescott specialise in computer recruitment for Australia and are able to advise candidates on working and living conditions within Australia.

Please telephone: **Chad Stolper** or **Anne Breuer** on (01)-434 2698 or (01)-439 2626 or, if you prefer, write to:

Prescott Computers Limited

43 Conduit Street, London, W1R 9FB
Telephone: 01-434 2698, Telex: 298881.

technical automation jobs in Holland

BSO offers you the opportunity to keep in touch with the latest developments in technical automation

Buro voor Systeem Ontwikkeling (BSO) is an independent Dutch Holding Company consisting of three subsidiary companies, one of which, BSO/Automation Technology BV, specialises in the field of technical and scientific automation. BSO/AT is currently engaged in various real-time process control and monitoring systems using microprocessors and minicomputers. Typical projects in this field are:

- development of medical Computerized Tomography and imaging apparatus
- development of computer systems for satellite ground stations
- development of a distributed automatic building security system
- development of a generalised aircraft simulation model
- development of a 'message handling' system for an industrial process
- control of dredging platforms.

BSO/Automation Technology itself consists of three staff groups: Software Technology, Systems Engineering and Cybernetics. From these groups project teams are formed, which are coordinated by project managers. Members of BSO have varied backgrounds and expertise in a wide range of disciplines and share a number of common qualities:

- they have a university education or the equivalent
- they are capable of working independently
- they show a high degree of initiative
- they are enthusiastic
- they appreciate an informal atmosphere, the opportunities to grow with the company, the type of projects and their variety, and last but not least - the salary and fringe benefits.

We would like to meet people with similar interests. We have for them the following vacancies:

project leaders

(up to £15,000)

For a number of current and future projects. You should have experience in design and implementation of real-time industrial or scientific systems and at least 6 years experience in technical automation.

systems designers

microprocessors

(up to £14,000)

You will work in the cybernetics group and would be expected to discuss directly with clients their requirements for equipment, write proposals and design, develop and supervise the implementation of equipment.

You already have a good record of completed projects based on microprocessors and have demonstrated a planned approach in such developments. You have a good knowledge of assembler languages and at least one high level language (e.g. Pascal, Fortran, PL/M, Coral 66, RTL2).

It is an advantage if you have, in addition to the above, knowledge of data transmission and data collection techniques.

specialist in distributed data bases

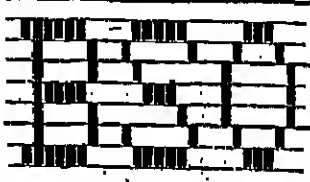
(up to £16,000)

You are familiar with DBMS-software (Codasyl) and you have knowledge or experience of the latest techniques like conflict analysis, parallel searching, multi-site queries etc. It is an advantage if you, in addition to the above, know about back-end or local networks.

Your job might be in Utrecht or at other locations in Holland. You will also have the opportunity, if you wish, to work for short or long periods on projects located outside the Netherlands. In addition to the salaries we offer a generous package of fringe benefits including a relocation grant, company car, medical insurance, pension, etc.

If you want to know more about BSO or the vacancies described above, please pick up the phone and call Yvonne Weddell, the secretary of BSO/UK, any time of the day or evening after April 12. She will be delighted to give you more information and will organise interviews in UK or Holland with the staff of BSO/AT. You can reach her at the following address: BSO/UK, PO Box no. 5, Oxley RH 8 0UG, Surrey, tel. Oxley (08833) 6253.

You can also call (please reverse charges) our personnel manager, Robert Schalkamp, tel. 010-31 30 946746. If you wish, you can send your application plus C.V. directly to him at the address below.



BSO/Automation Technology BV,

Koningin Wilhelminalaan 3, Postbus 3054, 3512 GB Utrecht, tel. 010-31 30 946746.

Senior Systems Analyst

CROYDON, SURREY £8K to £10K

At South Eastern Gas we require an experienced, capable and creative Systems Analyst to take responsibility for major project work, developing on-line and mini-computer systems to meet the needs of our progressive modern energy industry. Our hardware includes IBM 3032 and on Amdahl 470/V78. We also use CICS, VSAM and the Roscoe Program Development System.

So - if this is the kind of environment you are seeking to further your career, can offer at least 2/3 years proven experience and are looking for the benefits, expedited from a major organisation, then you could be the right person for this job.

For further details, please ring Roy Broughton on 01-888 4466; ext. 6002, or write, giving full details to the Personnel Manager, South Eastern Gas, Segos House, Kithorne Street, Croydon, Surrey CR9 1JL. Quoting ref. Q16783/GW.

SOUTH EASTERN GAS

Business Machines TECHNICIANS

Technicians needed to install and service screen-based word-processors, small business computers and other office machines for an installation and servicing company based in Riyadh. Salaries on merit. Single status initially. M/S later.

C.Vs, quoting Ref: 36/SML/357, to F. J. Salfack, Associates, 17 North Hill, Colchester CO1 1DZ. Telephone: 0206 85252

IBM 4300 NEW TECHNOLOGY UNIVAC REAL-TIME SYSTEMS ICCF ELIAS
PRESTEL COMMUNICATIONS NETWORK SDF GRAPHICS
TEXT PROCESSING NORFOLK TOTALLY NEW DESIGN FRONT-ENDING
PL1 FOUR MAINFRAMES

Systems Analyst

The successful applicant will be responsible for the design and control of major projects, and will join an existing team of professional analysts. Candidates should have proven ability in systems analysis, including the successful design, implementation and support of at least one major system. Experience of IBM 4300, or 370 series machines, and real-time systems would be an advantage.

We offer a competitive salary, good working conditions, four weeks' annual holiday, a profit sharing bonus scheme, pension and life assurance schemes, canteen and social club facilities and generous assistance with relocation expenses where applicable.

Application should be made in writing with full details to:
Personnel Office,
Eastern Counties Newspapers Limited

Prospect House
Rouen Road
Norwich NR1 1RE
Telephone: Norwich (0603) 28511

COMPUTER SERVICES MANAGER

Experienced person required to take over small but expanding DP department currently using Honeywell Level 62 main frame, working mainly in an on line environment. The person will be required to plan, direct and co-ordinate the organisation's data processing service in accordance with the objectives laid down by the Board. The company is in an interesting stage of expansion and real opportunities exist for the right person. Salary by negotiation, company car, contributory pension scheme are included in a generous package. Please reply in the first instance with full C.V. marking the envelope 'Private & Confidential' to the General Manager at:

Cambridge Jackson Limited



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Hurst Street
Birmingham B5 4BT
A Ladbrook Universal Company

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PROGRAMMERS: IBM 3790 (or 8100) DPCX and MACRO ASSEMBLER
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COMPUTER WEEKLY, April 9, 1981

27

SENIOR PROGRAMMERS Victoria c £9,000

- ★ To become involved in "State of the Art" development using fully conversational IMS DB/DC
- ★ 2 years' plus experience in COBOL with some CICS/DLI or IMS

- ★ A first-class Multinational Company with excellent working environment, benefits and prospects
- ★ Candidates with some Supervisory experience will be shown preference.

Ref: PJ 80188

CHIEF PROGRAMMER

Central London

to £12K

- ★ 8/7 years' COBOL Programming - UNIVAC exp preferred
- ★ To take part in Database applications
- ★ High degree of responsibility
- ★ Excellent benefits as expected of major company

Ref: PJ 81270

CONSULTANTS, ANALYST PROGRAMMERS & PROGRAMMERS HP 3000

Middx, Herts, City & Beds
Max £13K + Car

- ★ Developing Systems using HP3000/IMAGE/VIEW/QUERY
- ★ Requirements for BASIC & COBOL
- ★ Two requirements for SPL (will consider ICL PLAN)

Ref: PJ 81264

REAL TIME SYSTEMS PROFESSIONALS

London, Berks, Sussex, Hants & USA
Pounds Unlimited

- ★ To develop Communications System & Operating Systems
- ★ Preferably experience of PDPs or Micros, Telatax, Viewdate.
- ★ Excellent Companies, Perks and Prospects
- ★ PASCAL is a Plus

Ref: PJ 80206

Open until at least 8 p.m. every evening

PROGRAMMER, SENIOR PROGRAMMER, ANALYST, PROJECT LEADER

Salaries to £13K-Negotiable

- ★ Team of 6 people
- ★ To design and implement Systems based on CICS/DLI and DPPX
- ★ New 4300/8100 Combination

Ref: PJ 81278

SYSTEMS PROGRAMMERS

London, Essex, Herts, Surrey
Totally negotiable

- ★ DOS, OS, MVS
- ★ Junior, Medium & Heavyweight
- ★ 1 particular job to help support IBM related products, nag + cer.

Ref: PJ 81263

HEXAGON computer services

Hexagon House 148 Wardour Street London W1V 3TR

01-438-3671

International Technical Computer Services Manager (£20,000)

The position consists of managing a staff group of computer specialists, that provide technical support services in the following areas:

- Burroughs large system computers
- IBM 4300 computers
- Datapoint minicomputers
- Operating system software
- Database software
- Telecommunications
- Technical utility programming
- User consultation and training

The ideal candidates, male or female, would have a university degree and be self-motivated.

This multinational company has a leading position in the field of radiation chemistry. The European head office in Brussels has a dual-processor B 7000 and controls a growing network of minicomputers and IBM 4300 in several European countries and interfaces with a similar system in its headquarters in California.

The starting salaries and fringe benefits (such as profit sharing) are commensurate with high levels of ability. Removal expenses will be paid by the company.

Burroughs Computer Systems Specialist (£16,000)

Self-motivated database and operating systems technical specialist with experience in the following areas:

- Large systems Burroughs computers (B 6000/B 7000)
- MCP and BDMS II software
- Algol and Cobol programming languages
- CANDE and telecommunications

The individual we seek will have at least five years' experience in Burroughs computing systems at the operating system level.

Contact F.W. in London: 01-388 0036
Contact D.G. in Brussels: 02-653 2702

Euroserve
International Consultants
The Studio 35 Paddenswick Rd London W8

SUPPORT ENGINEER EUROPE

Are you an experienced engineer - male or female - with an in-depth knowledge of microcomputers and associated peripherals? Do you also have experience of supporting software written in the prime software languages? And would you be prepared to travel overseas?

Then we would like to hear from you. We are the European subsidiary of an established international company dealing in a wide range of computer equipment and peripherals, and we need a self-starter - preferably with a computer-relevant degree or HND - to support our customers in Europe.

We offer an attractive salary package in line with experience and ability, which includes all the benefits you would expect from a progressive organisation. If you feel you could meet our needs, write with brief career details to:

COMPUTER STAFF

Looking for a job but can't spare the time?

At C.P.I. we don't believe in bringing people to London on a fool's errand. If you are looking for a new position just give us a call and we will honestly tell you what we have available.

In the event that there is nothing currently suitable, we are quite happy to keep you informed of developments by telephone.

For further details contact:
Barbara Basquill on 01-836 6776

Computer Personnel International

EXCEPTIONAL EUROPEAN OPPORTUNITIES

A major multinational corporation is seeking high-calibre personnel to expand its system studies group based in France at Orleans. THE SYSTEMS STUDIES GROUP is involved in COMPUTER DEVELOPMENT PROJECTS across a wide spectrum of company activities - management, production, manufacturing, process control, marketing and office applications. Hardware is IBM 4341 and 370 using MVS and CICS. Applications are invited from experienced and mature individuals for the following positions:

1. SENIOR SYSTEMS CONSULTANT
The prime role is to participate in and advise on overall system strategy together with company management and to accept responsibility for overseeing the implementation of particular projects. Education to Honours degree level plus at least 4 years of solid experience on IBM equipment, including CICS and SAS environments is essential. Knowledge of the French language is mandatory.

2. SYSTEMS PROGRAMMER
Requirements are to be responsible for the development of programs within a system and to establish and maintain successful liaison between users and the development team. A very minimum of 2 years IBM experience with COBOL/MVS, CICS and SAS is essential together with a sound working knowledge of French.

3. PROJECT LEADER - PRODUCTION
The project leader must develop both strategy and techniques for the introduction of information systems throughout the various departments of the company. He will ensure that correct interfaces are established between departments and systems in accordance with the management strategy planning. He will have a good knowledge of APL, PASCAL, BASIC or FORTRAN and possess the ability to communicate his ideas clearly and diplomatically. Teaching and instruction of user department staff will also be his responsibility. Knowledge of French is essential.

4. PROJECT LEADER - PERSONAL COMPUTING
The project leader must develop both strategy and techniques for the introduction of information systems throughout the various departments of the company. He will ensure that correct interfaces are established between departments and systems in accordance with the management strategy planning. He will have a good knowledge of APL, PASCAL, BASIC or FORTRAN and possess the ability to communicate his ideas clearly and diplomatically. Teaching and instruction of user department staff will also be his responsibility. Knowledge of French is essential.

5. Various other SENIOR PROJECT MANAGER AND PROJECT MANAGER VACANCIES exist relating to the development of standard commercial applications e.g. stock control, financial control, produce time-sharing systems etc. Applicants should have IBM, TSO, VSPP, APL and BASIC experience. Spoken French is essential.

PLEASE WRITE OR TELEPHONE NOW
App. Mgmt., Marketing and Recruitment Director,
Industrial Artists Ltd, 23 Banbury, High Wycombe, Bucks.
Tel: (0494) 3741 (Day) or (0494) 700701 (Eve/Weekends)
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ARE YOU SELLING MICROCOMPUTERS?

One of Britain's top 20 companies, already well-established computer-users in six multinational groups, seeks another two successful sales people for its information systems subsidiary in Middlesex. The Company recently acquired sole UK marketing rights for a range of 2-80 based business microcomputers with full CPM software capability as well as viewdata and networking and communications options.

SE and SW Territories Unrestricted Earnings

These positions offer a car, BUPA, expenses paid, four weeks holiday, pension plan and product training. The Company is prepared to discuss assistance with relocation costs. Excellent technical sales support, continuous product development and substantial freedom of action also combine to maximise your success.

Interested applicants should write with full career details to:

Robert G. J. Wood,

SISCO LIMITED,

97 Portsmouth Road, Guildford, Surrey, GU2 5DL.
Tel: Guildford (0483) 34561

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DIRECT LINE
01-661 0121

Database work in Britain's Oil Industry

One of the largest participants in North Sea oil exploration and production, BNO is also recognised for advanced thinking on the application of computers to its many activities. Major database system developments are now being pursued, further extending an already demanding and varied workload, on large IBM mainframe equipment supported by a network of HP3000s. There are a number of key posts to be filled in Glasgow by Systems Analysts with degree or equivalent. You should have a programming background and experience of database design and implementation, using a proprietary DBMS and data analysis techniques. Knowledge of one or more of the following would

be an advantage: data dictionary, IDMS, RAMIS/FOCUS.

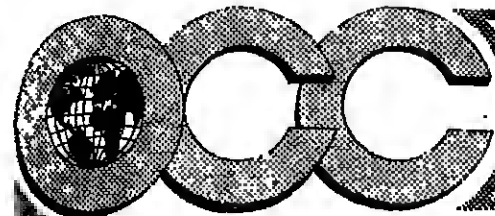
Working in BNO offers great scope for personal fulfilment and career development, and we provide appropriate training where necessary.

The salary/benefits package, including generous assistance with any relocation, is structured to attract people of exceptional abilities.

For details and application form, which should reach us by 24 April, please write or telephone quoting ref KM/CW to: Ken Mearsh, Divisional Personnel Officer, The British National Oil Corporation, 150 St. Vincent Street, Glasgow G2 5LJ.
Tel: 041-226 5555.

BNO

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NANTWICH

Specialists since 1971 in UK and International computer and technical appointments.

In Kuwait you keep all you earn...



IBM DOS/VSE Systems Programmers- As Section Managers in Kuwait you can earn £16,000 tax free, on married status!

(to net this figure in the UK you would need to gross at least £25,000)

The positions, with The Commercial Bank of Kuwait, are permanent on a 2 year renewable basis, with excellent working and living conditions.

In addition the Bank provides free fully furnished accommodation, generous relocation allowances, annual return flights home and a contribution towards the private education of children. Also, the cost of living is now cheaper than in the UK.

The Bank is undertaking a major expansion and development programme, involving the imminent installation of an IBM 4341, together with associated software and over 200 IBM 3600 terminals.

For this, two key systems managers are needed - Section Manager (Data Comms), Section Manager (Operating Systems).

For both these positions you will need a solid systems programming background of at least six years in a DOS/VS or DOS/VSE environment. For the operating systems position, a good knowledge of DOS under VM/370 would be useful. Whilst for the data comms position, solid exposure to a CICS or CICS/VS system is mandatory.

We also require CICS Applications Programmers, with at least three years' experience, who have a good knowledge of Assembler and CICS at MACRO level. The same conditions as above. Salaries to £14,000.

Contact Brian Harris on the above number (daytime).
Or on 027074 438 (evenings/weekends).

(1509)

EUROPEAN DATA PROCESSING CONSULTANT/ ADVISER

SURREY/HANTS BORDER
c. £15,000 p.a.

Above-average multinational in household and industrial consumables are seeking a person capable of thriving in an environment whose success is based on open discussion and team effort.

This position will involve the co-ordination and planning of all computer-related activities in several associated companies. Accordingly, considerable travel throughout Europe is necessary in order to carry out this job successfully. As a consultant/adviser you will work very closely with both senior management and project teams to ensure that the system needs are met in the companies for which you are responsible. Familiarity with the following areas is necessary:

- Communications
- Commercial Business Systems
- Minicomputers
- Systems Analysis/Design
- Project Management

People motivators are most likely to be the achievers in this environment, and will enjoy the rewards from a company geared to recognise individuals committed to developing their career.

Recruiting on behalf of clients, we will be pleased to exchange information confidentially by telephone and personal meeting. Please ring, quoting reference 406, or write briefly (messages recorded after hours).

(1510)

BRIGHTON
POLYTECHNIC
DEPARTMENT OF COMPUTING
AND CYBERNETICS

Lecturers and Senior Lecturers in Computing

Applications are invited from graduates with good academic qualifications and research or industrial experience, to lecture on a wide range of computing courses in an expanding department.

Applicants should have a particular interest and expertise in at least one of the following areas:

- Systems Analysis
- Data Bases
- Microelectronics
- Microprocessors
- Robotics
- Programming
- Artificial Intelligence
- Pattern Recognition/ Graphics
- Networks
- Communications

Salary Scales:

Lecturer I: £4,063-£8,066

Lecturer II: £3,012-£6,202

Senior Lecturer: £3,962-£11,230

Further details and application forms from the Personnel Officer, Brighton Polytechnic, Brighton, BN2 4AT. Tel: Brighton (0273) 608 600 Ext. 257.

Closing date for applications after post: 15/02/81

(1512)

CONTRACT PROGRAMMER

#monthly
Central London
Must have experience in COBOL at command level plus good COBOL and application of OS. To start beginning of May, possibly earlier.
Please contact Dagmar Jones

100000
Computer Services
252nd Way
Croydon, Surrey CR9 3JL

EDP SYSTEMS 01.637 5796
52-53 Margaret St. London W1N 7FF

HP 3000 on Line Design Liverpool

We are responsible for the UK manufacture of Glaxo pharmaceuticals and their sale in this country.

The Company is engaged in the implementation of a large network of Hewlett Packard 3000 minicomputers involving all Company locations. There is a major development programme of advanced on line systems mainly in the production planning and recording, inventory control and quality control areas.

Our Speke installation currently operates an HP 3000 series III computer with 30 user terminals and this configuration will increase considerably as development continues. We now require Analysts/Programmers to carry out system design and programming and to support the expansion in activity which is planned.

Applicants should have a sound COBOL programming background and be ready to accept the additional responsibilities of user liaison and systems design/implementation. Experience in the above mentioned areas of Company operations would be an advantage. Knowledge of an on line programming and data base techniques would also be an advantage although training in the relevant HP Software will be provided as necessary.

Career prospects are excellent and in addition to a good starting salary there are attractive conditions of employment including flexible working hours, Company Bonus Scheme, non-contributory Pension Scheme and assistance with relocation expenses. The factory is within easy commuting distance of pleasant residential areas in Cheshire and the Wirral.

Please write for an application form to: Mr. G. Salisbury, Personnel Manager, Glaxo Operations UK Limited, Speke Boulevard, Speke, Liverpool L24 9JD. Or telephone: (051) 488 1881, quoting reference FV1773.



INTERVIEWER

We are a small specialist consultancy currently seeking an interviewer to run our Client Division. Prospective candidates will be asked to three years' agency experience able to work without supervision.

A commission bonus will be negotiated on the first instance contact.

JOHN DOPSON, 01-623 0119

PROGRAMMER IN MUNICH

If you have experience of Zilog products and want to live South of Munich, please write or phone for an interview in London in early May.

Lothar Ullrich

Ulrich Automation GMSH

Eschstrasse Weg 37

D-8192 Garching

West Germany

Phone 01049 89 71 3012

TORONTO, CANADA COMPUTER CONSULTANCY Programmers

2½ - 3 years COBOL

Experience of IBM mainframe and/or Honeywell, DEC, or HP minis preferred.

Interviews will be held in Liverpool week commencing 4th May 1981.

Apply in the first instance to:

Ray Mount, Fraser Williams Group Ltd.,

Port of Liverpool Building, Pier Head, Liverpool L3 1BY.

Telephone: 051 227 3371.

Fraser Williams Computer Consultants

LONDON · ST ALBANS · LIVERPOOL · LEEDS · MANCHESTER · ROYNTON · BIRMINGHAM
BRISTOL · SHEFFIELD · GLASGOW · TORONTO · NEW JERSEY

(1513)

LIVERPOOL POLYTECHNIC COMPUTER SERVICES DEPARTMENT PROGRAMMER

£5,952-£6,750 per annum

A new computer system is being installed during the summer to provide a teaching facility for all Polytechnic departments. The new computer system, supporting 64 simultaneous users, will be operating in parallel with the existing 1903A batch system.

The Polytechnic's Computer Services Department was created in 1976 to provide a centralised service for the Polytechnic and its constituent colleges. The successful applicant will be expected to play a major role in the installation of the system and the establishment of an effective computing service for the Polytechnic.

THE VACANCY OFFERS A UNIQUE OPPORTUNITY TO BE INVOLVED AT THE START OF A MAJOR DEVELOPMENT PROGRAMME.

PLEASE QUOTE REFERENCE 1514A

Applicants are invited from candidates who have, or expect to obtain, a degree in Computer Science, or a related discipline, and who are currently employed in a computer service department.

Applicants should send their applications, together with a recent photograph, to: Mr. D. Wainwright, Project Director, Computer Services, Polytechnic, 1514A, 1514B, 1514C, 1514D, 1514E, 1514F, 1514G, 1514H, 1514I, 1514J, 1514K, 1514L, 1514M, 1514N, 1514O, 1514P, 1514Q, 1514R, 1514S, 1514T, 1514U, 1514V, 1514W, 1514X, 1514Y, 1514Z.

Closing date: 30th April 1981

CHELSEA COLLEGE

University of London

COMPUTERS IN THE

CURRICULUM

requires a

PROGRAMMER

to be involved in the transfer of

development of Computer Assisted

learning software in BASIC for a

range of micro and mini-computers.

Experience of computer

programming is essential. It may be

possible to obtain secondment from

an employer.

Write for further details to: Mr. D.

Wainwright, Project Director,

Computers in the Curriculum,

Chelsea College, Museum Road, London

SW3 2LX. Closing date: 30th April

1981

(1514)



INTERNATIONAL SYSTEMS ANALYST

MIDOX. £10,500
A large company situated in Middlesex is looking for a Systems Analyst who would like to travel abroad for short periods. The applicant will have a minimum of 1 year's experience of COBOL programming and 1 year's systems analysis, and an NGR background is desirable. If you have the above qualifications and enjoy international travel, then ring us now for further details.

CW 15/1 TRICIA

IBM SYSTEMS PROGRAMMER

S.E. LONDON £11,000
If you are an experienced Systems Programmer (2 years+) with a working knowledge of some of the following: OS, MVS, CICS, VTAM, etc. then you could be the right person for the above position. This company offers excellent company benefits in addition to a nice salary, so ring now for further details.

CW 15/2 TRICIA

PROJECT LEADER

E. LONDON c. £11,000
This well-known manufacturer requires a Project Leader with 3 years' experience of IBM PL/1 for involvement in large project systems development. The hardware is 370 under DOS/POWER/VS. Company benefits include a non-CPS. If your experience is relevant, contact us now for further details.

CW 15/3 TRICIA

CONTRACT ANALYST/PROGRAMMERS WANTED

IBM	CICS COBOL MVS	OXFORD	20+
IBM	CICS OS PL/1	LONDON	20+
IBM	CICS AS/400	ESSEX	20+
IBM	MARK IV OS on DOS	LONDON	20+
IBM	SYS 34 RPL II	LONDON	20+
UN	COBOL EXEC	LONDON/SURREY	20+
IBM	CICS DESIGNER	BRISTOL	1-10

PHONE MICHAEL FOR DETAILS



01-995 3883
101,995 8138 Evening

CHECK-OUT TO THE USA

BOSTON, NEW ENGLAND

Our clients, the Stop & Shop Companies Inc., are a diversified retailing group operating a total of 352 supermarkets, discount department stores, drug stores and tobacco shops throughout New England, New York, New Jersey and Virginia.

These career positions are located at their Boston, Mass., headquarters where they utilise 3 x 370/158s under MVS and are totally dedicated to developing an IMS/RAMIS on-line environment. Cobol is the main language and all work will be on the development of new on-line systems, including a major Point-of-Sale project.

SENIOR PROGRAMMER/ANALYSTS

\$25,000-\$28,000

A minimum of four years' D.P. experience is required with fluency in Cobol and an understanding of JCL. Successful candidates for these positions are considered to be the mainstay of a computer development project and will carry most of the first-line analytical and technical responsibilities for the majority of project phases.

Our clients will be interviewing for these positions in early May so please telephone immediately or write to E. J. Rhodes Associates, c/o CRS, 18 Buckingham Palace Road, London, S.W.1. Telephone number 01-828 1384.



university college of swansea

Lecturer
(the advertisement)

Applications are invited for a Lectureship in the Department of Computer Science. Candidates should have a first or good second-class honours degree in mathematics, computer science, or closely related subject together with substantial postgraduate research experience. Applications will be welcomed from candidates with research interests in any area of computer science.

The appointment will date from 1 September 1981, and will be made at the lower end of the salary scale £6,070-£12,000 per annum.

Further particulars and application forms (2 copies) may be obtained from the Personnel Officer, University College of Swansea, Singleton Park, Swansea, SA2 8PP. To which office they should be returned by Friday, 1 May, 1981.

An applicant from the first advertisement will automatically be considered, there is no need to re-apply.

(151)

THE MOTOR INDUSTRY RESEARCH ASSOCIATION

requires a

SCIENTIFIC PROGRAMMER

to join a small team working on a wide range of engine projects connected with vehicle research and development. The user is a Personal Computer 286 running on a 286 with 256K RAM and 20MB hard disk. The user is a Personal Computer 286 running on a 286 with 256K RAM and 20MB hard disk.

General years FORTY-FIVE experience in engine research.

Salary & £10,000 - £15,000 per annum.

Telephone: John Poulton 01 492 2444.

or write to: Personnel Manager, Motor Industry Research Association, 100, Victoria Road, Woking, Surrey, GU24 0JH.

(100)

Programmers

BIGGLESWADE
£5,500-£8,500 plus bonus

We are looking for people with a minimum of 1 year's proven programming experience preferably in one of the following areas:

- ★ ICL 1500 BTL
- ★ ANY M/C ASSEMBLER
- ★ ANY M/C BASIC

All successful applicants will demonstrate that they have the potential to develop their own skills and the more experienced applicants must be able to work with the minimum of supervision whilst providing assistance to other programming staff.

BECOME PART OF OUR SUCCESS STORY

PICK UP THE TELEPHONE NOW

Contact either: Alan Jephcott or Bill Brett,
Lloyds Bank House, 39 High Street,
Biggleswade, Beds.
Telephone (0767) 316286

Barron
McCann
Limited

Computer Systems and Consultancy

MVS Systems Programming

Netherlands c.£2,100/month

An experienced MVS Systems Programmer is required to join two of our software consultants providing technical support to an expanding Data Centre in the Netherlands. The successful applicant will be assigned to a small MVS group where in addition to normal implementation and maintenance duties responsibilities will include both assisting the Head of the Group with the planning of new releases and providing technical support to junior members of the team. The Centre comprises multiple 303X cpu's running MVS 3.8 SE II (SP planned) supporting a large network of remote terminals through such facilities as JES2 RJE, ACF, TSO, VSPC, IMS/VS and VM/CMS.

DOS/VSE Support

Holland c.£2,000/month

We require an experienced Systems Programmer to undertake an open-ended assignment (min. 8 months) in the Netherlands. Our client is running an IBM 4341 with DOS/VSE rel. 2 under VM supporting CICS/VS and DLI. The successful applicant will be responsible for all systems programming activities at the installation including planning, implementation, maintenance and the provision of technical support to applications staff. Candidates must therefore be capable of working on their own initiative and have at least 3 years systems programming experience coupled with a knowledge of one or more of the above mentioned Program Products.

TP Support-Shadow II

Holland c.£2,000/month

We are seeking a TP Systems Programmer to support Version 3.0 of Shadow, running a network of over 100 local and remote terminals. As well as supporting the operational TP system, duties will include installing Shadow on a new 4341, and involvement in an upgrade from BTAM to ACF/VTAM. Applicants should be capable of providing technical advice to development groups as well as undertaking the usual system support tasks.

IMS Technical Support

Holland c.£1,900/month

We are seeking a technically oriented Analyst Programmer to work with a small team in the Netherlands on the development of an international data collection and distribution system based on a centralised IMS Database. Duties will include the provision of IMS technical support to the group as well as the design and implementation of I enhancements to improve system efficiency. In addition to a thorough knowledge of IMS DB/DC candidates should have Cobol experience and a knowledge of assembler would be an additional advantage.

VM Implementation

Amsterdam c.£2,000/month

We are seeking an experienced Systems Programmer to implement VM/SP at an OS/VS1 installation in the Netherlands. VM will be run both on a production 4341, with the operational VS1 system as a virtual machine, and on other 4341's to support graphics terminals using the CADAM package under CMS. Applicants should have a good all-round knowledge of VM, and must be prepared to take on all tasks associated with installing VM/SP in both these environments.

CDS is a 45 strong Anglo-Swiss Consultancy specialising in the following areas:
• Systems Programming - MVS, VS1, VM, DOS/VS1, ACF, IMS/VS, CICS/VS.
• DB/DC Application Development - Particularly IMS DB/DC, DLI & CICS.
For further details of the above positions or for an informal discussion on future European or UK assignments please contact us at our UK office or on our 24-hour numbers at evenings/weekends: Brian Blyden 03440-5386 or Jim Shaw 0850-24546.

GDS The IBM System Software Specialists
GDS Ltd, 67-73 Park Street, Cambridge, Surrey GU10 3PE. Tel. 0276 26645 Telex 85801

Recruitment



In Informatics

Packet Switching

Paris: Salary to £15K

A French National Communications and Network Company is seeking several French speaking Packet Switching Professionals. You will be expected to be fully familiar with packet switching techniques, prototyping, data communications and modern/multi-processor interfacing. Of special interest will be candidates with experience of system implementation on any dual-processor. Initially the Company's U.K. subsidiary will offer employment to those selected after which you will relocate to the Company's Paris office for a minimum period of 18 months. Remuneration consists of a U.K. salary, overseas allowance and generous medical and pension schemes. First interviews will be held in London after which shortlisted candidates will visit Paris for final selection. Ref: U15/A

R/T Software Designers

Home Counties: Salaries to £12K

Software Designers with at least two years' experience of real-time systems development or process control systems. Specific hardware experience is not a requirement although respondents with exposure to DEC PDP 11 or Motorola based systems will be especially favoured. Ref: L15/B

CAD/CAM Systems

Thames Valley: Salary to £14K

A leading supplier of CAD/CAM Graphics Systems is seeking Senior Applications Consultants and Systems Programmers. The Company's European Headquarters are based within minutes drive of extensive rail, motorway and airport facilities. Successful candidates must offer recent or current involvement in one or more of the following areas: pre-sales feasibility studies; post-sales graphics support; advice to first-time users on installation problems and/or training of designers and draughtsmen in CAD/CAM techniques. Certain positions involve a degree of mobility and will carry a car allowance. In addition to an above average salary the Company offers an extensive range of valuable benefits including a profit share scheme. Where necessary, relocation assistance will be given. Ref: L15/C

IBM Programmers

Holland: Salaries to £12K

Applications Programmers are sought by the European Headquarters of an oil service company, situated in West Netherlands. Fluency in IBM COBOL is essential whilst additional skills in PL/I or BAL are much appreciated. Suitable candidates must be fully familiar with Structured Programming techniques used in a multi- or large-scale IBM environment. Of particular interest will be those who have participated in the development and implementation of an on-line system in the areas of Payroll, Stock Control or Bought/Sales Ledgers. These positions represent an outstanding opportunity for ambitious Programmers to enhance their careers whilst enjoying a foreign culture. Ref: L15/D

Pascal Programmers

London & Home Counties: Salary to £10K

A leading supplier of microprocessor development systems has an urgent requirement for Programmers to participate in its advanced compiler development project. Whilst our client has a strong preference for respondents with a knowledge of PASCAL, candidates fluent in any technically orientated high level language are encouraged to apply. It is essential for all applicants to demonstrate a knowledge of Structured Programming techniques and to have worked on mini or micro computer based systems. These vacancies will strongly appeal to talented, career-minded individuals wishing to enhance their technical skills in one of the most challenging areas of the data processing industry. Ref: L15/E

Financial Applications

Berkshire: Salary to £13K + Car

Our client is of U.S. parentage having its Headquarters close to extensive motorway and rail facilities in Berkshire. As a result of increased sales of its financial management systems the Company is now seeking additional Financial Analysts and Designers to act in both pre- and post-sales environments where analytical design skills are essential. Successful candidates should be aged 28-35. Ref: L15/F

Banking Consultants

City: Salaries to £16K

One of Europe's leading independent Systems and Software Houses is currently seeking Consultants for its City-based Banking Division. Suitable candidates will be graduates with a minimum of 5 years' banking and/or financial experience gained in either a commercial, merchant, banking, stockbroking or investment orientated environment. It is essential for all applicants to be fluent in at least one high level language, preferably COBOL, and to have been exposed to mini computers. As a member of a small team you will be involved in feasibility studies through to the full implementation of a client's system. Travelling will be mostly in the London area but occasional overseas visits may be required. Ref: L15/G

Logistix, 10 Grenville Place London SW7 4RW

01-373 3063



Telex: 28800

Senior Programmer

£8,538-£9,471 p.a. (Incl.)

We are seeking a Senior Programmer to head a team of three programmers who have 4 years' ICL COBOL experience and with at least one of the following languages: PLAN, T.P.L., or C.D.E., and a knowledge of Structured Programming. The Authority has invested heavily in Computer Resources and is responsible also for providing Data Processing Services to the neighbourhood Boroughs of Surrey Heath and Runnymede.

The Council's computer configuration comprises an ICL 2804 installation with 38K, EDS80s, 9-Track Tape Deck, Train Printer, 1501 CDE data entry and on-line enquiry and Cash Receipting via 7502s at each Authority.

MINIMAC is used for on-line programming and investigations are in hand to upgrade the configuration having regard to the heavy commitment to on-line systems. There is an extensive development programme and the successful applicant will be closely involved in this.

TEMPORARY HOUSING will be available in approved cases along with generous removal and disturbance allowances together with legal fees on house purchase up to £1,500.

Please contact the Chief Personnel Officer, Council Office, Woking, Surrey (Tel. STD 04882 5931 Extn. 171 for application form and job description. Closing date: 22nd April, 1981.

Woking
BOROUGH COUNCIL

WIGGINS TEAPE (U.K.) PLC DATA PROCESSING

We are a worldwide manufacturer and distributor of fine and specialist papers. We need extra staff to help with an expansion in computer based developments within our Group.

We operate a twin IBM 4341 configuration linked to an extensive U.K. network, including many remote terminal systems, IBM 4331's and IBM Series 1's. The languages used are COBOL, ASSEMBLER, NATURAL in conjunction with ADABAS data-base manager.

We require the following additional staff at our Head Office in Basingstoke: a limited amount of travel within the U.K. will be necessary.

AN ANALYST/PROGRAMMER SENIOR PROGRAMMERS PROGRAMMERS

In addition the company has a vacancy for a
**PROCESS CONTROL/SYSTEMS
ENGINEER**

Applicants should have significant experience on relevant equipment, although we are also looking for individuals with potential.

Wiggins Teape offers the conditions expected of a major U.K. employer including flexible working hours, subsidised restaurant, non-contributory pension scheme, etc.

Please contact Mrs. M. E. Gostling, Personnel Services Officer, Wiggins Teape (U.K.) PLC, Gateway House, Basing View, Basingstoke, Hants. Telephone: Basingstoke 20262, ext. 3101 for application form.

**WIGGINS
TEAPE**

Programmer/Analyst

required to assist with the development of computer systems at the Fund's Breast Cancer Unit based at Guy's Hospital, London SE1.

Age 28+ with a degree in Mathematics or mathematically based discipline plus two years post-university experience in BASIC, on-line (real-time) systems, and small machines. Knowledge of data base management systems desirable.

Salary to £9000 plus in exceptional circumstances extra consideration will be given to qualifications and experience.

Please send full Curriculum Vitae with names and addresses of three referees to: Miss S. M. Murray, Imperial Cancer Research Fund, Lincoln's Inn Fields, London WC2A 3PX.

ASSISTANT DP MANAGER

HOME COUNTIES TO £15,000 PER ANNUM

If you are a Senior Programmer, Project Leader or Systems Analyst and wish to take the next step to Senior Management, and have a COBOL/PLI background, then telephone to hear about this and other Senior DP vacancies.

Sloangate
The Appointments Register

Sales Executives

Communications Products

Data Logic is one of the largest system houses in the UK - marketing a wide-range of computer based products and services.

In the Communications Products Division, based in London, the accent is on a systems approach right from simple point-to-point links through to highly complex network management systems. The products are comprehensive, sophisticated and readily adaptable. We already have a substantial base of prestigious clients providing first-class reference accounts. Technical back-up in the field is outstanding and ensures a highly professional approach to the user.

What we are now looking for are additional Sales Executives to sell these products.

The successful applicants will be able to show a successful track record selling high-value business in the communications or data processing industry.

Alternatively, if you have a background in technical support in the data communications or data processing industry and feel you have what it takes to be a successful Sales Executive, we would be interested in hearing from you as well.

Guaranteed earnings, including a high basic salary are negotiable around £10k, and on target performance will earn another £5k in the first year.

For more details contact: Ann Forrescue, Data Logic Limited, 29 Marylebone Road, London NW1. Tel: 01-486 7288.

Data Logic Limited
29 Marylebone Road
London NW1

A Raytheon Company

**Data
Logic**

Word Processing
Terminal Systems
Communications Products
Professional Services
Customer Engineering

OPPORTUNITY! OPERATIONS MANAGER

Our primary need is for a tough competent D.P. person who is a planner, organiser and motivator and above all is user orientated. Operation skills are the primary requirement but knowledge of programming and systems is desirable to effectively control outside sub-contractors.

We are a profitable manufacturing and sales company employing one hundred and fifty people, located near Biggin Hill in Kent. The installation is a basic 2903 with 24k and 20 mill EDS and a staff of four.

Over the last three years we have developed and installed a large number of accounting, sales and production DP based control systems. We have user departments anxious to expand the use of these systems and develop new ones. Our development is arrested at present by disorganisation in the computer room. We need a forceful organiser who within three months can increase the utilisation of the hardware and operators and can tackle the considerable housekeeping problems we have accumulated. It is anticipated that when, after three months the DP department is operating regularly and the satisfaction of user departments, we will again launch into development work with the aid of outside consultant programmers and analysts where necessary.

Salary is £8,500, 4½ weeks' holiday, subsidised canteen and exciting working conditions.

Please reply to Box No. 1138, C.W.

METROPOLITAN BOROUGH
OF ROCHDALE

An Equal Opportunity
Employer

Programmer

Salary: £8,500 p.a.

Technical Support
Programmer

Salary: £8,500 p.a.

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Programmer

Salary: £8,500 p.a.

Technical Support
Programmer

Salary: £8,500 p.a.

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Technical Support
Programmer

Salary: £8,500 p.a.

Technical Support
Programmer

Salary: £8,500 p.a.

Technical Support
Programmer

Salary: £8,500 p.a.

Career Opportunities for Site Preparation Engineers

With systems installed in fifteen countries, including North America, our client has established a leading position in providing unique communication facilities which address the Message Switching and Electronic Fund Transfer sectors. Further development of advanced Electronic Office configurations to co-ordinate Telex, Facsimile, FAX and Videotext concepts will maintain this advantage.

Outstanding opportunities, with real prospects for rapid promotion within a highly professional marketing team, exist for Site Preparation Executives familiar with minicomputer equipment. A knowledge of DEC equipment, though not mandatory, would be a definite advantage.

The Site Preparation Executives would be responsible for liaison with the users and the users' contractors, computer room planning, costing and approval of proposed configurations and arranging for their commissioning.

Applicants should have technical experience allied to a diplomatic personality as they will fulfil an important role in the establishment of overall customer satisfaction.

Our client is accustomed to providing very attractive remuneration packages to ensure its continuing success - competitive salary, bonus, company car or allowance, private medical treatment, pension scheme and travel opportunities are the ingredients which have contributed to a twenty-fold growth during the last five years. Location: London.

Applicants should telephone Garry Meakin at PDL for further details.

PDL PETERSON DAVIDSON LTD
Heron House 19 Marylebone Road
London NW1 Tel: 01-486 8991

Senior Computer Operator

Wanting to go into programming
Cardiff

to work on the Honeywell Level 64 DPS-2 computer. Some shift work will become necessary. Initially the post-holder will be responsible for establishing an operating environment for the College's financial system. As the online database membership system develops, he/she will be required to assist the programming team and will ultimately be responsible for maintaining the system. At least two years' experience of operating at a senior level is required. GCOS an advantage, as well as an aptitude for programming, demonstrated by practical experience or appropriate qualification.

Salary scale £8745 to £8020, pay award pending, plus contributory pension scheme.

Application form and further details from the Personnel Officer, Royal College of Nursing, Harrogate Place, London: W1M 0AB, Telephone 01-580 2545.

Closing date for return of applications: Monday, 27th April, 1981.

Rcn

Royal College of Nursing

ULSTER POLYTECHNIC

Faculty of Science

PRINCIPAL LECTURER DATA PROCESSING OR APPLIED

STATISTICS (ONE POST)

LECTURER/SENIOR LECTURER DATA PROCESSING OR APPLIED

STATISTICS (TWO POSTS)

Salary Scales:

Principal Lecturer £11298-£12591/£14238

Senior Lecturer £8624-£11328/£12141

Lecturer £6462-£10431

Applicants for these posts should have a good Honours Degree and/or a Professional Qualification. Teaching experience or professional/industrial experience with an interest in teaching would be considered an advantage. Research and consultancy will be encouraged.

Applicants for a Data Processing post should be able to contribute to the teaching of a range of data processing topics and to specialise in some of these areas.

Applicants for an Applied Statistics post should have an interest in computing and be able to contribute to the teaching of applied statistics across a range of courses concerned mainly with business systems.

The Polytechnic is a three year institution with an independent Board of Governors. It opened in 1971 and has a student population of some 7800. It has extensive day purpose-built accommodation, including 830 beds at places on the 114-acre campus overlooking the sea. There is a scheme of shared accommodation with the University.

Further particulars and application forms which must be returned by 27 April 1981 may be obtained by telephoning 0181 275 1121 or 0181 275 1122 or by writing to:

The Establishment Officer, Ulster Polytechnic, Kings Road, Newtownabbey, Co. Antrim BT27 0QB.

Career opportunities in Systems Programming in the North East MAJOR IBM SITE

Our client, one of the country's leading industrial organisations, is proceeding with major development plans for the already large IBM installation. In the next few months we will be recruiting a large number of technical support and systems development staff into positions which we believe offer unparalleled opportunities for career development in both the short and long term.

Initially we are seeking to recruit additional systems programming staff at both an experienced and trainee level. The hardware in use is impressive and the software on which successful candidates will work is extremely comprehensive. It can be said that if it runs on large IBM hardware then our client uses it, or has plans to do so. We know that it is a bit of a sweeping statement and cannot be 100% true - but who cares about the odd few per cent.

Let us first say that they are using or planning to use MVS, VTAM, CICS, DL/I, IMS, DMS, DCF, DLF, VSPC, TSO, SPF, CADAM, DISOSS.

We are realistic in our search for candidates and know that we cannot recruit people who have worked with and have in depth knowledge of all that software; however, some experience of the major items is important.

Systems Programmers

Experienced systems programmers are required with at least 5 years programming experience of which 2 years should have been in systems programming. Specific software knowledge should include MVS, VTAM and DL/I. (Ref CW/B109)

c £9000

Trainee Systems Programmers

Candidates must have 2 years programming experience in an IBM installation. Some assembler experience whilst not essential would be an advantage. (Ref CW/B110)

c £7000

Attractive salaries will be negotiated in line with the indications above but could be higher for an outstanding candidate and a comprehensive relocation package is available in appropriate cases.

Contact Ivor Norton at the Harrogate office to arrange an initial discussion which will be arranged on a regional basis.

N

Ivor Norton Management Services Ltd.

RECRUITMENT CONSULTANTS

HARROGATE - P.O. Box 63, Copthall Tower House, Harrogate HG1 1TS, Harrogate SG82B

LONDON - 52, Shaftesbury Avenue, London W1V 7OE, 01 734 8862

GLASGOW - 11 Bothwell Street, Glasgow G2 8LY, 041 228 4811

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Type of Transport Date of Birth

Current Position

Contract/Permanent details

Salary/Rate

Position Required

(Contract/Permanent) details

Salary/Rate

Notice Required/Date Available (date)

Areas Preferred First Choice

Second Choice

Experience to date: (Last Position First)

Company Name From To

and Location Mth/Year Mth/Year Duties and experience

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IRELAND

A COUNTRY WITH A FUTURE

For computer personnel Ireland represents a growth economy and a rapidly expanding industrial base with urgent emphasis on computing.

Our clients wish us to identify computer professionals with genuine in-depth experience in the following areas:

CICS—DOS/VSE

Analysts who have designed and implemented at least 1 system.

Cobol Programmers with at least 2 years' experience and with a background in manufacturing or distribution.

SYSTEMS PROGRAMMING

Candidates with B.Sc. degree or equivalent who can write compilers and who have experience of IBM, Digital or ICL compilers, Digital or ICL compilers/operating systems.

COMPUTER PROFESSIONALS

To cope with rapid expansion our clients urgently require personnel with proven experience in the following:

- Microcomputer Sales (Hardware/Software).
- Consultant Level Analysts.
- Senior Programmers (Cobol).
- Programmers (RPG11-Maplec).

THE REWARDS

In addition to the satisfaction of working in a dynamic environment and sharing one of the best quality of lifestyles in Europe, you will enjoy salary levels which reflect a buoyant economy and growth conditions.

Employee benefits and training facilities are geared to the highest international standards.

Company cars are provided in many cases and where appropriate generous relocation assistance is available.

Housing is considerably cheaper than most parts of the U.K. and a government grant of up to £2,000 is available to new house buyers.

Applications will be strictly confidential.

Phone or write now. Quote Ref. No. CW48



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Insight House
20 Upper Fitzwilliam Street
Dublin 2
Telephone: (01) 306046

System Supervisor

AMP Legg is a major supplier of process equipment to the World's Tobacco Industry and exports some 80-90% of its products. Our Management Information Systems Department now requires an experienced System Supervisor to augment its team.

The successful applicant is likely to have a programming background with a strong interest in systems programming including JCL. The ability to control a multi-programming system including a communication network is required. Responsibilities include scheduling, communications monitoring, system libraries and disc utilisation. The installation uses a Remote Data Entry system - Incomterm RDE 770 - which is programmable and the Supervisor is responsible for its performance. The mainframe is a Honeywell L64 and current development is towards a communications environment.

There is a total Operations Staff of eight, reporting to the supervisor.

A salary of £8,500 is envisaged and generous relocation assistance will be available if necessary.

Please telephone for an application form or send details of age, qualifications and relevant experience to:

C. N. Watford,
Personnel Manager,
AMP Legg,
Newbury Road, Andover, Hants.
Tel: Andover 62199.

AMP
Legg

SHAPE TECHNICAL CENTRE

The Hague, Netherlands

A NATO scientific/technical establishment has vacancies on its International staff for:

SENIOR SCIENTIFIC ASSISTANTS

DG53.124*

To provide support to the Military Operational Research studies as members of project teams. This involves the design, testing and running of computer programs, operating computer facilities, interactive terminals and graphics displays; preparation of inputs for simulation models; data collection and analysis; presentation of results.

QUALIFICATIONS:

Education to, with recognised qualifications at, the Higher Technical School/College level. Experience in computers and programming languages (including FORTRAN), data-reduction techniques.

* Gross annual salary (tax-free) for non-Dutch married officials without children.

Candidates who are nationals of one of the NATO countries are invited to send full details of training, experience and personal data to the Personnel Officer, SHAPE Technical Centre, P.O. Box 174, 2601 CD The Hague, Netherlands, within four weeks of the appearance of this advertisement. Please quote reference (CW/UN) when applying.

(5100)

SYSTEMS PROGRAMMING

IMS and VSI

The systems development division of a leading international bank is about to embark on a major programme of installing, new and enhancing existing systems, and requires additional personnel with the following experience:

- * IMS SYSTEMS SPECIALIST
To install, document and performance test new IMS database software, advising on initial set-up and subsequent monitoring and maintenance.
- * VSI SYSTEMS SPECIALIST
To install enhancements to existing VSI software, investigating new options and facilities with consequent benchmarking and documentation.

The company offers excellent negotiable salaries from £10,000 to £14,000 depending on experience with a benefit package including personal loans, mortgage facilities and a convenient and pleasant Surrey based working environment.

OPERATIONS AND SUPPORT

IBM OS/VS1

The City based production centre of the above company requires experienced operations staff to fill the following positions:

- * OPERATOR/OPS
A minimum of two years relevant OS/VS1 experience is required. Additional knowledge of VM and IMS would be advantageous. Training will be given to the successful candidate on the shift allowance.
- * TRAINER/TECHNICAL SUPPORT OFFICER
If you have gained sound operational background in OS/VS1 or MVS with additional experience of IMS, VM/CMS, JCL and associated programming and would like to become more technically involved in operations, the company will be pleased to give the successful candidate full training in all aspects of technical support. Salary up to £7,000 including shift allowance.

Both vacancies offer mortgage facilities in addition to a comprehensive benefit package. Please ring JANET WARREN on 01-438 7851.

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(5121)

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Viking House, Peterborough Road, Harlow, Essex, HA1 2XU

PROGRAMMER/EISCAT

A vacancy will arise for a Programmer in the Headquarters Staff of the European Incoherent Scatter (EISCAT) Association.

The Headquarters is located in KIRUNA, the observing stations near TROMSO, IN KIRUNA and in SODANKYLA. The particular vacancy to be filled will require the successful candidate to be stationed at the RANFJORMOEN facility near TROMSO but he/she must be prepared for periods of detached duty in KIRUNA AND SODANKYLA.

Major job assignments in co-operation with existing programming staff to develop and test the systems needed for operations and data acquisition - assist scientific personnel in preparing software for the execution of IONOSPHERIC experiment participate in off-line data analysis.

Prior experience in operating Research Radar Systems and intimate knowledge of NORD 10 computers would be advantageous. From time to time the operating schedule will necessitate irregular working hours.

Salary according to qualifications. Closing date for applications: April 20.

Applications to be addressed to:

EISCAT SCIENTIFIC ASSOCIATION
Box 705, S-981-27, Kiruna, Sweden

(5191)

Senior Computer Operator

CROYDON from £7,153 p.a.

You will be responsible to the Shift Controller to assist in the efficient operation of the Region's computer equipment. Your duties will include job scheduling, monitoring of operating systems and assisting in the training of subordinates staff. The present installation comprises of an IBM 3032 and Amdahl V7. A wide variety of both batch and on-line applications are undertaken supporting a large network throughout the Region. You should be prepared to work on a shift system and have a minimum of two years' operating experience using NVS JES2 and VM. A basic knowledge of JCL and the use of IBM utilities is also required.

Write, giving full details, within 7 days, and quoting Ref. O.8788 to: Personnel Manager, SOUTH EASTERN GAS, Sogas House, Kotharine Street, Croydon CR8 1JU.

SOUTH EASTERN GAS

(5191)

ANAL/PROG N. BUCKS. to £9,700 - Car Scheme
Minimum 2 years' IBM/COBOL involved in development maintenance on a TOTAL DATABASE System. ENVIRON 1.

SENIOR ANALYST BEDS. to £10,000
IBM Hardware with OL1 or PL1 in the Systems Programming area. Responsibility for all Systems Software. Relocation.

ANALYST BEDS. to £9,500
Minimum 2 years on ICL Hardware. Involved in ON-LINE Developments. COBOL background on 2900 series exp. preferred. Relocation.

ANALYST BEDS. to £9,500
Minimum 2 years on IBM DOS VS POWER with a COBOL background. CICS exp. preferred.

JUNIOR ANALYST HERTS. to £8,200
To work on IBM Hardware CICS with PL1 or COBOL. Relocation.

ANAL/PROG HERTS. to £9,000
Excellent career prospects, responsible to DPM. Involved in support RAMIS or ICF/ESS with FORTRAN BASIC on IBM Mainframe.

Contact: HOWLETT COMPUTER SERVICES, Ravenstone Chambers, High Street, Leighton Buzzard, Bedfordshire. Telephone: 0525 394735 or 377519.

HOWLETT COMPUTER SERVICES

BOX NUMBERS

Box number replies should be addressed to:

Box Number
c/o Computer Weekly
Dorset House
Stanford Street
London EC1A 1LU

FOR ALL OUR RECRUITMENT ADVERTISERS

An exclusive opportunity to pioneer in the most advanced recruitment medium of the 80's

We invite you to join us in pioneering what may well be the biggest breakthrough in computer recruitment history.

IPC Electrical-Electronic Press Ltd. have launched a Prestel Viewdata appointments service for computer personnel - the first of its kind - and Computer Weekly advertisers are being given an exclusive opportunity to use it.

For just £75 extra, any position advertised in Computer Weekly will also be announced on Prestel screens for five days. The screen announcements will contain the main details given in the Computer Weekly advertisement. And this special computer appointments service will have its own key access number on Prestel.

The Prestel information service is now available in public libraries, universities and computer centres across the country - and many key computer personnel are already regular users. Your advertisement will be telecast on Prestel the day we receive it - up to six days before it appears in Computer Weekly itself - which could enormously increase the speed of response as well as the number of replies.

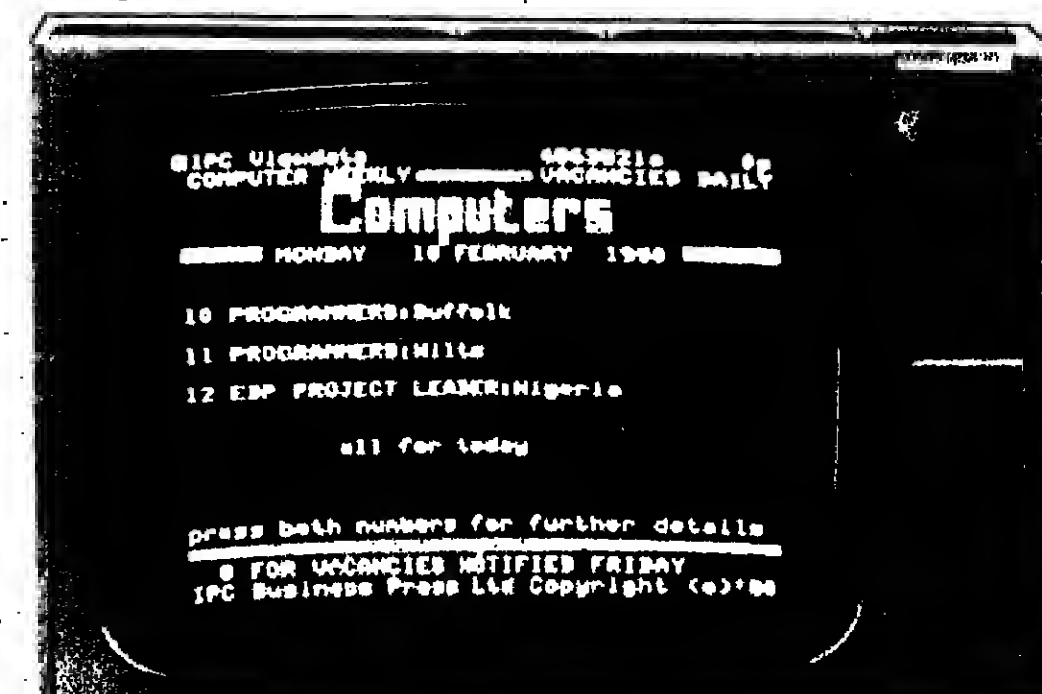
Start your 1980's recruitment programme by harnessing the key information medium of the new decade. Contact Brian Durrant, Classified Advertisement Manager, IPC Electrical-Electronic Press Ltd., Quadrant House The Quadrant, Sutton, Surrey, SM2 5AS. Tel 01-661 3106.

Computer Weekly

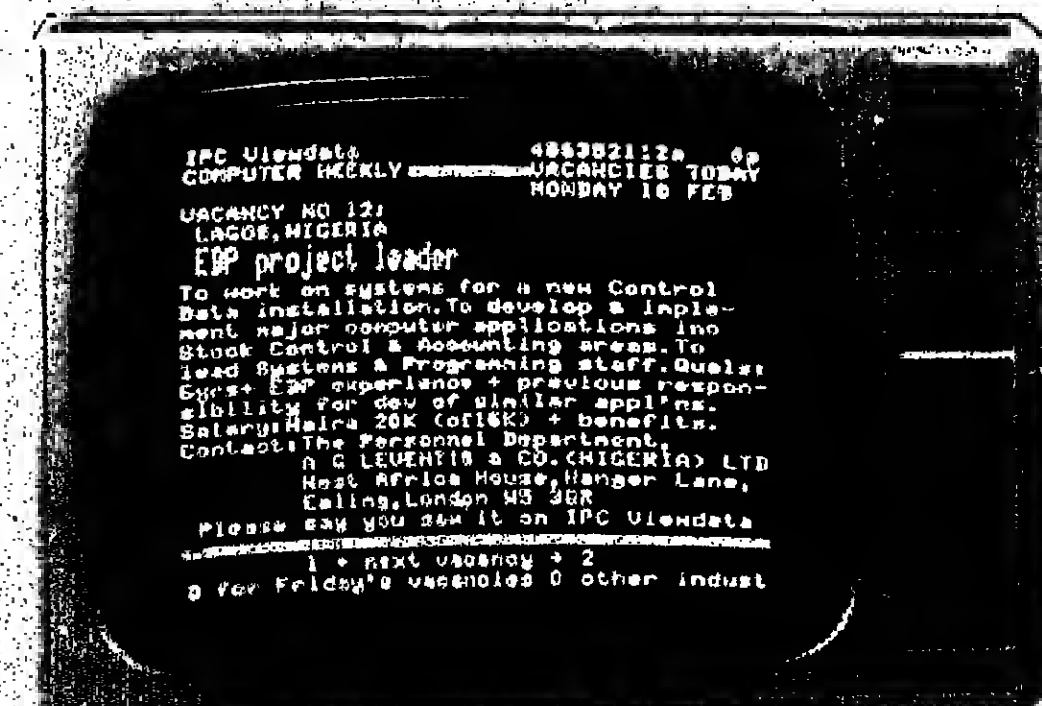
in association with IPC Viewdata

Note: A parallel service is available to Electronics Weekly recruitment advertisers.

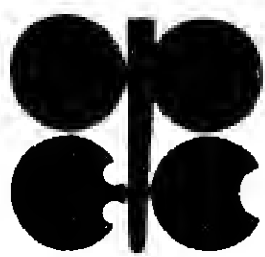
HOW IT WORKS



On dialling the computer appointments number, applicants are immediately informed what jobs are available for the day, and given a key number for each. They can also obtain details of the previous four days' vacancies, so that each job is in effect on offer for a working week, at a cost to the advertiser of only £15 per day.



On pressing the specific job's key number, applicants are given full details of the vacancy (if there's room, all the details that you have in given in your appointments ad) including how, where and when to apply. This amounts to a 5-day recruitment campaign, screened to a highly select audience.



Organisation of the Petroleum Exporting Countries

offers experienced Data Processing professionals most challenging job opportunities in its Computer Section. Applicants are invited from candidates with basic academic qualifications up to a Technical or University Degree or equivalent professional training plus a minimum of 5 years' working experience in the computer applications field and in FORTRAN, PL-1 or Mark IV programming. Fluent English is essential.

DATA BANK ADMINISTRATOR

Profound knowledge in File Management Systems and DPMS packages is necessary. Experience in the design, implementation and operation of data banks. In the enhancement of performance and in establishing standards for operational procedures and documentation is required. The successful candidate should have implemented at least a medium-size database application using one of the major DPMS in a multi-user environment.

SYSTEMS PROGRAMMER

Deep knowledge of IBM operating systems (MVS/TSO, VM/DMS) and their associated hardware components. Must be familiar with installation and maintenance of software packages and a detailed knowledge of IBM assembler language, JCL and usage of interactive monitors. Knowledge of CICS and STAIRS would be an asset. Some knowledge of Digital PDP series minicomputers also welcome.

APPLICATION PROGRAMMER

Specific working experience in the development of D.P. applications is required; thorough practice in FORTRAN is necessary, as well as basic knowledge in operating systems, DPMS and file management systems. Educational background in methods of Operations Research and experience in large-scale modelling is welcome.

The posts are permanent and provide for tax-free salary and social benefits. Applicants are requested to send their detailed curriculum vitae including job history and salary progression as well as a recent photograph to:

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If you have good relevant experience contact us now. You will join a professional and highly-motivated group where ability and performance are the key to success. The rewards are correspondingly high. As well as a great deal of job satisfaction, they include a company car, twice-yearly reviews, and profit related bonuses.

Brief details, please, to Nall Cumming.

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or telephone 01-499 8771 Now.

(5156)

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Turnkey Systems House specialising in MINI-COMPUTERS to first-time users. Rapidly becoming a Market Leader in this fast-growing market.

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£10-£12K

With solid experience in Financial/Accounting Applications including Order Processing and Stock Control. To design interactive Systems based on high powered Mini-Computers. Requires fluency and authority when dealing with a wide range of first-time users.

Extensive Accounting Systems experience is essential. Therefore, you must have done the job before. Great possibility for a DPM yearning to return to a "Doing Job".

Contact: Jack Schumann, Director.

STAR COMPUTER GROUP
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Tel: 01-739 7633

(4878)

SMR

Sales & Marketing Recruiters Ltd
Victory House, 99 Regent Street, London W1R 7HB
A Sales and Marketing Services Company
London & Midlands

Technical Support Manager

Have you got what it takes?
(— To manage a group of applications specialists
and support our clients and salesforce!)

The person we are seeking already has experience of managing a team of pre/post-sales analysts for a hardware manufacturer or computer services company and working within a variety of applications and industries. He or she will be an energetic and enthusiastic person accustomed to the demands of a sales and service oriented environment. Like as not there will be only one problem with this person's present situation — lack of challenge and career opportunity. If the answer is a move to a more progressive and dynamic company environment, this job could well be the answer.

The Technical Support Manager is responsible for a wide range of duties including:

- Control of client projects. Recruitment. Training. Individual career development.
- Expansion of major accounts. Interface with sales management. New product development.

The job is located in Central

London

and as a market leader within a major international corporation the company is able to offer significant fringe benefits and an attractive income package of

£16,000 + Company Car

Please supply complete career details to Alasdair Scott quoting reference JPA/104.

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SALES TRAINING, MARKET RESEARCH, RECRUITMENT

السيد / السيدة / المصطفى

2900 Database Development Senior Programmer/ Systems Analyst

Salary £8,000 - £9,400

We have recently taken delivery of a 4-megabyte ICL 2956 and are starting to develop all our systems in a VME/B - Database environment. We are looking for an experienced programmer with an interest in the technical aspects of database implementation to join a newly created small Database Administration team. Responsibilities will include advising Systems Analysts and Programmers in the use of IDMS, ICL Data Dictionary, 2900 COBOL and SCL, and developing database procedures and security systems. Training provided if necessary.

36-hour week, flexible working hours, 5 weeks' holiday, and relocation expenses in approved cases.

Application forms and further details from Controller of Personnel Services, Town Hall, Forest Road, London E17 4JF.

(Tel: 01-531 8899 - 24 hour answering service).
Please quote Ref. B3875; closing date 1st May.



How to respond to an agency advertisement

MANY recruitment advertisements deliberately use the name of an employment agency rather than that of the potential employer. This is because a company using its own name runs a severe risk of revealing, if only by implication, information about its activities and general situation to such interested parties as competitors, recruitment agencies — and its own staff.

A lot of implied information can be gleaned from recruitment advertising, such as competitive data related to marketing strategy; information for existing employees related to terms of employment for particular job functions; and the possibility of high-level company problems due to the movement of senior personnel.

Recurrent advertising suggests a high rate of staff turnover rather than rapid expansion; advertisements are a source of potential business for all recruitment agencies; and re-advertisement of a previously failed exercise suggests the job is unattractive.

However, the most common reason why companies advertise under the banner of a recruitment agency is not an absolute need for secrecy, but an endeavour to communicate with potential candidates who, as part of the market's overall population, are likely to have some misconception of the true nature of the organisation concerned.

It is the nature of salespeople, for instance, often to have a completely jaundiced view of their competitors. They are accustomed to selling against them that they become self-conditioned into believing that nothing good could possibly emanate from such companies, and are therefore unlikely to consider them as potential future employers.

By advertising via an independent recruitment agency a company is able to avoid this and other kinds of unfounded or at least out-of-date, prejudice, and make sufficient contact at least to get the truth across via a responsible third party.

As a result of this, candidates who respond by letter or telephone are often aware of the advertiser's real identity. Many applicants

and the occasional recruitment agency make telephone contact merely to discover who the company is, but clearly there would be little point in using an agency if the facts could be picked up so easily.

Most recruitment companies are prepared to state whether the name of their client is contained within a list of previous employers, declared by the applicant just in case he is applying for a job with a previous or even his present employer.

Even in such extreme circumstances, no recruitment agency can afford to jeopardise its professional integrity by breaching the confidentiality of its candidates or clients. Consequently, there is no harm in applying for any job even if one is subsequently underwhelmed by its attraction.

The chances are that the job opportunity will be of interest and as a result, formal application can be made in order to proceed to the interview stage, provided there is reasonable compatibility between the specification of the job and the experience and qualifications of the applicant.

If the job is advertised on behalf of a specific company, avoid any agency which is prepared to discuss the requirements of other clients unless one is definitely excluded from the job originally applied for. Any truly professional and ethical agency will guarantee that response to advertisements which have been funded by the client will be considered for their requirements alone, until such time as either the candidate or the client specifically declare their total lack of interest.

Eventually, the candidates with appropriate qualifications are interviewed by the recruitment agency and this is when the name of the potential employer is usually revealed, along with details of the company's history, product, marketplace and the job itself.

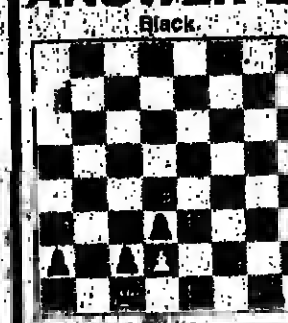
Ninety-nine times out of 100, this process is absolutely straightforward and handled with complete professionalism by all parties concerned. The agency advises the candidate on the suitability of his qualifications for the job and the compatibility of the job with the needs of his career.

The right people for the job (as opposed to merely the best of the applicants) are shortlisted. The employer and the candidate then meet and eventually decide whether or not to work together. Whatever the outcome, the air is clean; with no corruption of the character or security of the individuals concerned.

Unfortunately, this is not always the case, and next week I will write about some of the risks to potential employers and employees alike.

Alan Williams

PUZZLE ANSWER



COURSES

A NON-RESIDENTIAL workshop entitled, Practical Project Management is intended for those controlling or likely to control computer projects. The course, which examines the costs, control and people involved in such projects, can be adjusted to personal style and the general project environment. It will

be held at the Kensington Close Hotel, London, beginning on April 27. The fee is £425 + VAT and details are available from the organiser, BIS Applied Systems, York House, 199 Westminster Bridge Road, London SE1 7UT. Alternatively, telephone Jackie Pears on 01-261 9237.

2900 IDMS PROGRAMMING

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